



JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-1 10067

www.jnu.ac.in

E-PROSPECTUS

Doctor of Philosophy (Ph.D.)

&

Diploma of Proficiency

ACADEMIC SESSION

2022-23

INDEX

Section	Page
I. General	04-06
II. School and their Programme of Study	
1. School of International Studies	07-15
2. School of Language, Literature and Culture Studies	15-24
3. School of Life Sciences	25-29
4. School of Social Sciences	30-41
5. School of Environmental Sciences	41-42
6. School of Computer and Systems Sciences	43-43
7. School of Physical Sciences	44-44
8. School of Computational and Integrative Sciences	45-46
9. School of Arts and Aesthetics	46-47
10. School of Biotechnology	48-49
11. School of Sanskrit and Indic Studies	49-50
12. School of Engineering	50-51
13. Atal Bihari Vajpayee School of Management and Entrepreneurship	51-52
14. Special Centre for the Study of North East India	52-52
15. Special Centre for E-Learning	53-53
16. Special Centre for Molecular Medicine	53-54
17. Special Centre for the Study of Law and Governance	55-56
18. Special Centre for Nano Sciences	56-57
19. Special Centre for Disaster Research	57-58
20. Special Centre for National Security Studies	58-58
21. Special Centre for Systems Medicine	59-59
III. Reservation of Seats for SC/ST/OBC/PWD Candidates	60-62
IV. Reservation for Economically Weaker Sections (EWSs)	63-63
- Format of Income & Assets certificate to be produced by Economically Weaker Sections	64-64
- Format of Certificate – SC/ST category	65-65
- Format of Certificate – OBC category	66-67
- Format of Certificate – PWD category	68-70
V. Guidelines for Providing Scribe to the Candidates with Benchmark Disability	72-72
VI. Dr. B.R. Ambedkar Central Library	72-73
VII. Fellowships/Scholarships/Awards	73-73
VIII. Linguistic Empowerment Cell	74-74
IX. Hostels Facilities	74-75
X. University Health Centre	76-77
XI. Games and Sports	77-77
XII. Cultural Activities	78-78
XIII. National Cadet Corps Activities	78-78
XIV. Internal Complaints Committee (ICC)	78-78
XV. Anti Ragging Policy of the University	78-81
- Format of affidavit by the student	82-82
- Format of affidavit by parent/Guardian	83-83
XVI. Rules of Discipline and proper conduct of students of JNU	84-86
XVII. Fee and Mode of Payment	87-87
XVIII. Certificates and other documents required at the time of viva voce & admission	88-89
XIX. Admission Procedure for Foreign Students	90-91
XX. Intake for the Year 2022-23	92-101
XXI. Eligibility of candidates who are due to appear in the qualifying examination	101-101
XXII. Time-Table for Admissions	101-101
XXIII. Exam Centre State wise	101-101
XXIV. Date Schedule for Entrance Examination 2022-23	101-101
XXV. Important Points to remember while applying	102-103

Section

Page

XXVI	Syllabus for Entrance Examination	
	1. School of International Studies	104-111
	2. School of Language, Literature and Culture Studies	112-114
	3. School of Life Sciences	115-115
	4. School of Social Sciences	115-124
	5. School of Environmental Sciences	124-124
	6. School of Computer and Systems Sciences	124-125
	7. School of Physical Sciences	125-129
	8. School of Computational and Integrative Sciences	129-132
	9. School of Arts and Aesthetics	132-134
	10. School of Biotechnology	135-150
	11. School of Sanskrit and Indic Studies	150-150
	12. School of Engineering	150-150
	13. Atal Bihari Vajpayee School of Management and Entrepreneurship	151-152
	14. Special Centre for the Study of North East India	152-152
	15. Special Centre for Molecular Medicine	153-153
	16. Special Centre for the Study of Law and Governance	153-154
	17. Special Centre for Nano Sciences	154-156
	18. Special Centre for Disaster Research	156-157
	19. Special Centre for National Security Studies	157-158

The Jawaharlal Nehru University constituted under the Jawaharlal Nehru University Act 1966, (53 of 1966) came into existence in 1969. Its objectives, as defined in the First Schedule of the Act, are as follows:

"The University shall endeavour to promote the principles for which Jawaharlal Nehru worked during his life-time, national integration, social justice, secularism, democratic way of life, international understanding and scientific approach to the problems of society.

Towards this end, the University shall:

- (i) foster the composite culture of India and establish such departments or institutions as may be required for the study and development of the languages, arts and culture of India;
- (ii) take special measures to facilitate students and teachers from all over India to join the University and participate in its academic programmes;
- (iii) promote in the students and teachers an awareness and understanding of the social needs of the country and prepare them for fulfilling such needs;
- (iv) make special provision for integrated courses in humanities, science and technology in the educational programmes of the University;
- (v) take appropriate measures for promoting inter-disciplinary studies in the University;
- (vi) establish such departments or institutions as may be necessary for the study of languages, literature and life of foreign countries with a view to inculcating in the students a world perspective and international understanding;
- (vii) provide facilities for students and teachers from other countries to participate in the academic programmes and life of the University."

In the light of the above, the approach of the University has been to evolve policies and programmes which will make Jawaharlal Nehru University a distinct addition to the national resources in higher education rather than a mere quantitative expansion of facilities which already exist. The University has identified and is concentrating upon some major academic programmes, which are of relevance to national progress and development.

The basic academic units of the University are not single discipline departments but multi-disciplinary Schools of Studies. A School has been visualised as a community of scholars from disciplines which are linked with each other organically in terms of their subject-matter and methodology as well as in terms of problem areas. Some Schools are made up of a number of Centres which constitute the units operating within the broad framework of a School. A Centre has been defined as a community of scholars irrespective of their disciplines engaged in clearly identified inter-disciplinary programmes of research and teaching.

Unless otherwise specified, the JNU being an all India University, the medium of instruction for all programmes of study (barring Languages) is English.

In order, however, to facilitate students coming from varying backgrounds with medium of instruction other than English at their Bachelor's/Master's level, the University has in-built facilities for remedial courses in English Language in order to enable them to strengthen their foundation in English as well as to cope up with their academic and research programmes adequately.

The University includes the following Schools of inter-disciplinary research and teaching besides some Special Centres of Study:

- (i) School of International Studies
- (ii) School of Language, Literature and Culture Studies
- (iii) School of Social Sciences
- (iv) School of Arts and Aesthetics
- (v) School of Life Sciences
- (vi) School of Environmental Sciences
- (vii) School of Computer and Systems Sciences
- (viii) School of Physical Sciences
- (ix) School of Computational and Integrative Sciences
- (x) School of Biotechnology
- (xi) School of Sanskrit and Indic Studies
- (xii) School of Engineering
- (xiii) Atal Bihari Vajpayee School of Management and Entrepreneurship
- (xiv) School of Indian Traditional Music and Dance
- (xv) Special Centre for E-Learning
- (xvi) Special Centre for Molecular Medicine
- (xvii) Special Centre for the Study of Law and Governance
- (xviii) Special Centre for Nano Sciences
- (xix) Special Centre for Disaster Research
- (xx) Special Centre for the Study of North East India
- (xxi) Special Centre for National Security Studies
- (xxii) Special Centre for Systems Medicine

In matters relating to enrolment, steps have been taken to ensure that students from all parts of the country are able to join the University so that it becomes a national University in the true sense of the word.

The admission policy of the University is governed by the following principles:

- (i) to ensure admission of students with academic competence and potentialities of high quality so that its alumni may be able to play their role in the process of nation building and social change in a meaningful manner;
- (ii) to ensure that adequate number of students from the under-privileged and socially handicapped sections of our society are admitted to the University; and
- (iii) to maintain all-India character of the University by having on its rolls a fair representation of students from different regions of the country especially the backward areas.

Reservation of seats in various programmes of study for candidates belonging to Scheduled Caste (SC), Scheduled Tribe (ST), Other Backward Classes (Non Creamy Layer (NCL) and Economically Weaker Sections (EWS) (not covered under SC, ST & OBC) category is 15%, 7.5%, 27% and 10% respectively. As per the provisions of Rights of Persons with Disabilities (PWD) Act, 2016, not less than 5% seats are reserved for Persons with Benchmark Disabilities, where "person with benchmark disability" means a person with not less than forty percent (40%) of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability, as certified by the certifying authority.

Note: For candidates applying for Diploma of Proficiency: All OBC (NCL) category candidates are eligible to 10% relaxation in the percentage of marks in the qualifying examination in relation to open category. The SC/ST and Person with Disability (PWD) candidates who have passed the qualifying examination irrespective of their percentage of marks are eligible for admission.

For candidates applying for Ph.D programme: Subject to the conditions stipulated in these Regulations, the following persons are eligible to seek admission to the Ph.D. programme: (a) Candidates who have a Master's degree or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed) or an equivalent degree from a foreign educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions. A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/ PWD as per the decision of the Commission from time to time, or for those who had obtained their Master's degree prior to 19th September, 1991. The eligibility marks of 55% (or an equivalent grade in a point scale wherever grading system is followed) and the relaxation of 5% to the categories mentioned above are permissible based only on the qualifying marks without including the grace mark procedures; (b) Candidates who have cleared the M.Phil. course work with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed). A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/PWD and other categories of candidates as per the decision of the Commission from time to time; (c) Candidates possessing a Degree considered equivalent to M.Phil. Degree of an Indian Institution, from a Foreign Educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions, shall be eligible for admission to Ph.D. programme and (d) P.G. degree holders of AYUSH Systems of Medicine will be considered equivalent to Masters programmes (M.Sc./M.A.) and are also eligible for the JNUEE for Ph.D. programme.

In the light of the objectives of the University as spelt out in the First Schedule of the Act, steps have been taken to ensure that students from outside India, especially from the developing countries join the rolls of the University in adequate number.

The number of seats being limited; admission will be made on the basis of merit. Merit lists will be drawn in accordance with the provisions of Admission Policy 2022-23 of the University. Admission Policy 2022-23 is available on the JNU website i.e. www.jnu.ac.in

The outstation candidates admitted to the programme of study of the University will be considered for hostel accommodation as per rules of the University subject to availability of hostel accommodation. Grant of admission in the University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to its availability.

No Candidate shall be eligible to register himself/herself for a full-time programme of study if he/she is already registered for any full-time programme of study in this University or any other University/Institution.

In service candidature may kindly refer to Admission Policy of the University available on JNU website.

A candidate who successfully completes a programme in one particular language/subject may not be entitled for admission to same level of programme (language/subject) again. The candidate may be allowed one more chance to get admission in other language/ subject. Further, the candidate who fails to complete the programme successfully in the first two chances will not be given admission third time in the same language/ subject under any circumstances. This will be applicable to all programmes of study being offered by the University.

Selection Procedure for Admission:

The candidates seeking admission into Ph.D. programmes have to appear in the CBT (Computer Based Test). The qualifying marks for General & EWS shall be 50% of total marks and 45% marks for SC/ST/OBC (Non creamy layer)/PWD categories. It is to be noted that mere qualifying in CBT does not entitle the candidates to be shortlisted for viva voce Examination. Short listing of the candidates to be called for viva voce shall be done as per the following criteria:-

(1) For General Category	Intake x 5 times
(2) For SC/ST/OBC/EWS Categories	Intake x 8 times
(3) For PWD Category	8 times – wherever available

With regard to (1) above, it is further, clarified that in case of reserved category scoring equal or more marks than General, then such reserved category candidates shall be called for viva-voce as per seat matrix given for (1) above.

Note: The syllabus of the entrance test for admission to a Ph.D. Programme shall consist of 50% of Research Methodology and 50% shall be Subject Specific. Questions on Research Methodology may be either implied/intrinsic or explicit.

JRF qualified candidates shall be exempted from Computer Based Test (CBT). They are required to apply separately under JRF category. Such candidates shall be shortlisted and called directly for viva-voce.

GATE qualified candidates for the admission in the school of Engineering shall be exempted from Computer Based Test (CBT). They are required to apply separately under GATE category. Such candidates shall be shortlisted and called directly for viva-voce.

The admission to Diploma of Proficiency (DOP) in Bhasha Indonesia, DOP in Hebrew and DOP in Mongolian will be based on merit as per the performance in Certificate of Proficiency in respective language.

In case of bunching of aggregate total (CBT+Viva voce) marks for Ph.D. programmes, merit shall be drawn on the basis of the higher marks secured in the CBT conducted by NTA and further, if need be (in case of tie), according to the marks obtained in the qualifying Post-Graduate degree will be given preference. In case of further tie, the higher marks obtained by the candidate (s) in the graduate degree shall be considered. In case of any further tie, the marks secured by the candidate(s) in the 10+2 examination shall be the basis for determining merit. The candidate whose result has been declared, would be given preference over those whose result has not been declared. In case of bunching in the JRF and GATE categories merit shall be drawn according to the marks obtained in the qualifying Post-Graduate degree, and for further tie, the same procedure will be adopted as mentioned above.

In case a candidate does not appear in the Viva then he or she will be disqualified & not be considered for selection to the Ph.D. programmes of study.

Admission of JRF holders to Ph.D. programme

Only those candidates who fulfil the minimum eligibility requirements as prescribed for admission of candidates to Ph.D. programmes as mentioned in the respective schools/centres and have qualified for Junior Research Fellowship through CSIR, UGC National Eligibility Test (NET), ICMR, AYUSH, DBT examination are eligible to apply separately in the prescribed form under this category in the respective school/centre/Special Centre wherever separate intake through JRF category is available (the link for this category will be available on the JNU website). Such candidates shall be exempted from appearing in Computer Based Test (CBT). However, candidates shall have to appear for an interview and their selection will depend on their performance in the interview. Candidates who have appeared in these examinations, but results awaited may also apply under this category. However, such candidates will be interviewed upon submission of a valid proof of having qualified for or awarded the JRF certificate at the time of interview. Please note that candidates who have been awarded "Lectureship" (without JRF) in the CSIR/UGC examination and any other fellowship on the basis of Lectureship (without JRF) (Assistant Professorship) are not eligible and will not be interviewed. In case of candidates applying under JRF category selection will be done on the basis of 100% viva score.

Admission of GATE holders to Ph.D. programme in the School of Engineering

Only those candidates who fulfil the minimum eligibility requirements as prescribed for admission of candidates to Ph.D. programme as mentioned for the School of Engineering and qualified for GATE fellowship are eligible to apply separately in the prescribed form under this category (the link for this category will be available on the JNU website). The intake will be as per the availability of number of fellowships and requirement of seats in the School. In case of candidates applying under GATE category, selection will be done on the basis of 100% viva score.

Admission of Foreign Nationals to Ph.D. programmes

The admission of foreign students for Ph.D. programmes may be considered in compliance with UGC 2016 Regulations regarding number of research scholars faculty (i.e. Professor/Associate Professor/Assistant Professor) can supervise. Foreign students shall be offered seats only if seats are left vacant in any discipline after being offered to Indian Candidates who have appeared in JNUEE – 2022-23.

II. SCHOOL AND THEIR PROGRAMME OF STUDY

1. SCHOOL OF INTERNATIONAL STUDIES

Established in 1955, the School of International Studies is the oldest School of the University. The School has established itself as one of the premier institutions in the country for the study of international relations and area studies. The School has made pioneering contributions in promoting the study of international relations as an academic discipline in India and in advancing knowledge and understanding of international affairs in an interdisciplinary perspective. The School is also the first institution in the country to promote "Area Studies" and to develop expertise on various countries and regions of the world. It has also acquired an international reputation as a centre of advanced learning.

To begin with, the School was affiliated to the University of Delhi as the Indian School of International Studies. From September 1961 till the School merged with Jawaharlal Nehru University in June 1970, it functioned as a deemed university. Following the merger, the prefix "Indian" was dropped from the name of the School and it became the School of International Studies of the Jawaharlal Nehru University.

For a long time, the academic programmes of the School focused exclusively on research only awarding Ph.D. degree. Soon after the School became a part of the Jawaharlal Nehru University, the M.Phil. curriculum was introduced in 1971-72. In the following academic year 1973-74, the School started offering a 2 year M.A. (Politics: International Studies) programme. A new and unique M.A. programme in Economics (with specialization in World Economy) was introduced in 1995-96 by the Economics Division of the Centre for International Trade and Development. The School has introduced a new two year M.A. Programme (International Relations and Area Studies) with specialization on area studies and contemporary international developments.

Presently, there are more than 100 faculty members in the School. It also has Emeritus Professors and distinguished scholars. Several Chairs have been instituted in the School in the recent years. These are Appadorai Chair, Nelson Mandela Chair, State Bank of India Chair and Jawaharlal Nehru Chair in International Environmental Law. Members of the faculty of the School have contributed to the advancement and dissemination of knowledge in International Studies not only through their teaching and research supervision but also by publishing books and articles in journals of highest international repute.

The School holds national and international seminars from time to time on important aspects of area studies, inter-country relations and on themes relating to the study of international relations as an academic discipline.

The School also holds a series of Hriday Nath Kunzru Memorial (Extension) Lectures every year on a theme relating to contemporary international relations. Under an endowment funded by Asia Publishing House, Bombay, it also holds lectures in memory of the great poet and patriot, Sarojini Naidu and invites a distinguished scholar or statesman to deliver the memorial lecture.

The School publishes a quarterly journal "International Studies". Founded in July 1959, this journal has acquired world-wide reputation as a leading Indian academic journal in the field.

PROGRAMMES OF STUDY

Centres of Studies & Fields of Study

1. Centre for Canadian, US and Latin American Studies

1. Ph.D. in Canadian Studies
2. Ph.D. in United States Studies
3. Ph.D. in Latin American Studies

2. Centre for European Studies

- Ph.D. in European Studies

3. Centre for International Legal Studies

- Ph.D. in International Legal Studies

4. Centre for International Trade and Development

- Ph.D. in International Trade & Development

5. Centre for East Asian Studies

1. Ph.D. in Japanese Studies
2. Ph.D. in Chinese Studies
3. Ph.D. in Korean Studies

6. Centre for International Politics, Organization and Disarmament

1. Ph.D. in International Politics
2. Ph.D. in International Organization
3. Ph.D. in Diplomacy and Disarmament
4. Ph.D. in Political Geography

7. **Centre for Russian & Central Asian Studies**
Ph.D. in Russian & Central Asian Studies
8. **Centre for South Asian Studies**
Ph.D. in South Asian Studies
9. **Centre for Indo-Pacific Studies**
Ph.D. in Indo-Pacific Studies
10. **Centre for Inner Asian Studies**
Ph.D. in Inner Asian Studies
11. **Centre for African Studies**
Ph.D. in African Studies
12. **Centre for West Asian Studies**
Ph.D. in West Asian Studies
13. **Centre for Comparative Politics and Political Theory**
Ph.D. in Comparative Politics and Political Theory
14. **Human Rights Studies Programme**
Ph.D. in Human Rights Studies
15. **Energy Studies Programme**
Ph.D. in Energy Studies

(B) CENTRES OF THE SCHOOL

(i) Centre for Canadian, US and Latin American Studies

The Centre for Canadian, United States' and Latin American Studies is a reputed academic centre of School of International Studies at Jawaharlal Nehru University (JNU), New Delhi. The Centre conducts and promotes academic and policy relevant research with an inter-disciplinary component and adopts a holistic research on international relations. The Centre has a wide-based expertise covering major areas in a multifaceted dimension – political, economic, diplomatic and strategic in all the three Divisions – Canadian, United States and Latin America. The Centre has contributed over the years knowledge and expertise on various international issues and themes having both academic and policy relevance. It has forged academic network with a number of academic institutions, think tanks and key governmental institutions.

The Centre also promotes outreach activities in the form of lectures, seminars and workshops at various universities in India and abroad. The implications of such outreach activities have been very positive in outlining India's perspective on the contemporary discourse on global geopolitical environment and how these can help understand the complexities of the foreign policy evolution. The Centre also facilitates interactions with the members of the key policy community for a better understanding of the evolution of policies on pertinent important themes impacting India and the rest of the world.

The Centre has attempted to examine and analyse various issues relating to strategic domain, foreign policy, society, culture and above all the major geopolitical regions such as Indo-Pacific. The Counter-terrorism Cooperation among major powers, Maritime Security Cooperation and the Connectivity issue for enhancing trade and commerce are fundamental features of preferred research and studies from the United States, Canadian and Latin American perspective.

The Centre for Canadian, US and Latin American Studies comprises the following three streams:

1. Canadian Studies
2. United States Studies
3. Latin American Studies

The Centre offers inter-disciplinary courses at the M.A. (School level), and Ph.D. level on Canada, the United States, and Latin America and Caribbean. The Centre's thrust areas include domestic political dynamics, foreign policies, security policies, regional integration processes and issues related to multiculturalism, ethnicity, gender, environment, politics of development and the sociological study of immigrants. Candidates are required to apply in any one of the Ph.D. Programmes offered by the centre.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sis/ccuslas>

(ii) Centre for European Studies

The Centre for European Studies (CES) is a multi-disciplinary department which promotes teaching, research and outreach activities to enhance the understanding of Europe and Indo-European affairs. The Centre came into existence in 2005 as a result of a larger restructuring of academic programmes in the School of International Studies and has seven faculty members. The areas of teaching and research in the Centre include Europe, the European Union (EU), countries of Western Europe, Central and Eastern Europe, the Nordics, Baltic region and the Mediterranean. It offers various Ph.D. courses on Europe and the EU viz., European Economic Integration, Issues in European Security, EU in World Politics, Social Structures and Dynamics in Europe, Energy Security in Europe,

Politics and Society in Central and Eastern Europe, Identity Issues in Europe, Contemporary Issues in the Nordic Region, Europe and the Mediterranean Region; and Foreign and Security Policy of the Baltic States. In addition, there are compulsory courses on Research Methodology and German/French. The Centre also offers B.A. and M.A. courses. Regular seminars, conferences, lectures and workshops are organized by the Centre with the aim of bringing together wide range of expertise and to exchange views on the subjects of contemporary importance. The UGC has recognized the Centre as one of the advanced centres of European Studies in India by granting it an Area Studies Programme. So far the Centre also has been awarded four Jean Monnet Chairs, three Jean Monnet Modules by the European Commission. While recognising its overall contribution to European Studies, the European Commission in 2018 also awarded the Jean Monnet Centre of Excellence to the Centre.

For more details about the Centre, visit the JNU website : <http://www.jnu.ac.in/sis/ces>

(iii) Centre for International Legal Studies

The Centre for International Legal Studies consists of specialists in International Law, Trade Law, Law of International Organisation, International Environmental Law, Human Rights Law, Intellectual Property Law and International Air and Space Law. The Centre offers Ph.D. programmes. It also offers three core courses (International Law of Peace, Legal Controls of International Conflicts and International Law and Organisation) to M.A. Students of the School.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sis/cils>

(iv) Centre for International Trade and Development

The Centre for International Trade and Development (CITD) is a premier economics department in India with special focus on global economic issues like international trade, open economy macroeconomics, economic development, health & nutrition, gender, poverty and inequality, education, labour, environment, natural resources, finance, technology, IPR, law and economics, public finance, and economic regulation. The Centre offers two programs in Economics: MA in Economics (with specialization in World Economy), and PhD in Economics. In both programmes, the Centre attempts to develop a strong foundation for theoretical and empirical economic analysis.

Faculty members actively engage in applied and theoretical research in the above areas, attract research funding from various national and international agencies and publish in leading journals. PhD scholars at CITD are encouraged to pursue their research in a variety of topics within the broad fields listed above, both theoretical and applied, using advanced tools in game theory, econometrics, experimental methods amongst others.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sis/citd>

(v) Centre for East Asian Studies

Scholars in the doctoral programme of the Centre specialise in the areas of their interest related to the East Asian region. The faculty of the Centre also offers courses at the MA level of the School. The Centre organises regular seminars, workshops and meetings, conducts presentations by researchers and invites area experts from abroad to enhance scholarly understanding of the region. The faculty members of the Centre have published extensively in national and international journals and are reputed experts in their fields. They also serve as consultants, advisors, or honorary fellows at eminent institutions in India and abroad. Several students of the Centre have been recipients of prestigious research fellowships awarded by the Chinese, Taiwanese, Japanese and Korean Governments. Besides, the scholars of the Centre also avail scholarships offered by the Japan Foundation, Nippon Foundation, Korea Foundation and the Academy of Korean Studies. The fellowships offered by the Nehru Memorial Museum and Library, the Indian Council of Social Science Research and the Indian Council of Cultural Relations also enable scholars of the Centre to conduct their field work and research in the East Asian countries. Over the years, the Centre has considerably expanded its international collaborations and networks and is well positioned to promote multidisciplinary studies and research on East Asia.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sis/ceas>

(vi) Centre for International Politics, Organization and Disarmament

The Centre runs four PhD programmes in

(i) International Politics (ii) International Organization (iii) Diplomacy and Disarmament (iv) Political Geography.

The focus of the Centre's research activities has evolved over the years, in line with emerging concerns in the arena of world politics. Those wishing to apply to any of our programmes should note the specific areas of concern for each programme. The International Politics division primarily works on theoretical approaches to the study of global politics, in particular major schools of thought such as Realism, Liberalism, Constructivism, Feminism, Marxism/Post-Marxism, Normative Theory, and Post-Colonialism. The International Organization division focuses on the structures, processes, politics and problems of organising co-operation to address major issues of vital global and regional importance. The Diplomacy and Disarmament division focuses on the following themes: history, theory and practice of diplomacy, negotiations, war and peace, technology and global politics, revolution in military affairs, nuclear deterrence, weapons of mass destruction, arms control, non-proliferation and disarmament, traditional and non-traditional security studies, climate change and environmental negotiations, economic and trade diplomacy, critical theory and critical security studies, terrorism, violence, critical terrorism studies, conflict management and resolution, environmental security, and epidemics and pandemics. The Political Geography division focuses on the study of theoretical and applied aspects of political geography, geopolitics and critical geopolitics. The division also runs a Cartographic Lab equipped with GIS software. Further information may be obtained at <https://www.jnu.ac.in/sis/cipod>

(vii) Centre for Russian & Central Asian Studies

The Centre runs Ph.D. Programmes and conducts research on Russia, Central Asian and other post-Soviet states. It works in close cooperation with policy makers and larger academic community. Regular seminars and conferences are organised by the Centre to bring together wide range of expertise and promote exchange of views on the region. In recognition of its high quality academic and research programme, University Grants Commission accorded the Centre the status of an Advanced Centre of Russian and Central Asian Area Studies in India. Other areas of research and teaching in the Centre are Transcaucasia and Baltic Republics, Ukraine, Belarus and Moldova. History, Politics, Foreign Policy, Economy and Society of these states are studied in an inter-disciplinary manner.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sis/crcas>

(viii) Centre for South Asian Studies

The Centre for South Asian Studies covers studies and research on a range of aspects of 8 countries. All the academic activities including teaching and interdisciplinary research have been designed to objectively study and analyse history, politics, foreign policy, security, societies, economies, environment, regional cooperation/integration and contemporary affairs in different regions/countries covered by the Centre. The Centre has focused on academic pursuits that have strong intellectual value, deeper social relevance and wider national and international utilities and policy dynamics. Its programme of studies has attracted bright students having diverse background from various parts of India and also from other countries. It has evolved into a full fledged institute of academic excellence, much admired by students, frequently consulted by the national governments and eagerly sought after by international organizations and other academic institutions.

The profile of the students who have completed their studies from the Centre does show that a large number of them have joined premier academic and research institutions and equally handsome numbers are in the national and state civil services. Many of the students have done exceedingly well in media and non-governmental organizations, other tertiary sector activities and national and regional politics. The importance of the Centre has become more critical and vital both in the context of large scale transformation in the global scenario and also within the countries that have been traditionally covered and studied by the Centre. There are immense opportunities for academic inquiry triggered by these new developments.

For more details about the Centre, visit the JNU website : <https://jnu.ac.in/sis/csas>

(ix) Centre for Indo-Pacific Studies

The Centre for Indo-Pacific Studies (CIPS) is a new Centre created in 2013 keeping in view the profound shifts that are taking place around India and India's rapidly rising stakes in the Indian Ocean and East Asia. Equally, it is also a reflection of today's geopolitical realities. The Indo-Pacific as a region is emerging as the new template of reference since the confluence, interdependence and interface of the Indian and Pacific Oceans are getting strengthened not merely economically but geostrategically as well. The Indo-Pacific, comprising a vast spatial continuum spread from the Indian Ocean all the way up to West Pacific, including the crucial regions such as Southeast Asia and South Pacific, also brings forth India's centrality and its relationship with regions in the Indo-Pacific quite distinctly.

Centre's focus are Southeast Asia, the South Pacific and the Indian Ocean. First of its kind anywhere in the world, CIPS's intent is to break new ground by focusing its research and teaching on new frontiers of knowledge and bring out newer dimensions of a rapidly changing world. The programme is supported by competent and dedicated team of faculty committed to high quality teaching and research. Plans are afoot to expand and develop it into a leading Centre of academic excellence.

For more details about the Centre, visit the JNU website : <https://jnu.ac.in/sis/cips>

(x) Centre for Inner Asian Studies

The Centre for Inner Asian Studies, School of International Studies, Jawaharlal Nehru University is engaged in teaching and research on the whole of Central Asia, that is the five Central Asian Republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan; Xinjiang, Tibet and Inner Mongolia autonomous regions of China; Mongolia and Afghanistan. Over the years, this programme has evolved as the advanced Centre of Inner Asian Studies in India and is known for its excellent research work and publications both at the national as well as international levels. All the academic activities including teaching and research have been designed to study and analyze history, politics, society, economy, geopolitics of energy and transport networks, besides the contemporary developments in Central Asia, Chinese Central Asia, Afghanistan and Mongolia, and relate them to Indian experience and policy.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sis/cias>

(xi) Centre for African Studies

Centre for African Studies covers the entire African continent including Sub-Saharan, North African region and African Island countries. It has UGC Area Studies Programme on African Studies established in 2005. The Centre focuses on research activities related to Southern Africa, Francophone Countries, North African Region and Diaspora Studies and also has a UGC sponsored special programme on Diaspora and International Migration Programme (DIMP). It has special focus on Africa's Global Engagement and Indian Diaspora in the region.

The Centre offer M.A. as Ph.D courses on African Studies and Diaspora in International relations. Taught courses include foreign policy as well as political, economic and social systems pertaining to the region.

For more details about the Centre, visit the JNU website: <https://www.jnu.ac.in/sis/cas>

(xii) Centre for West Asian Studies

The main thrust of the Centre for West Asian Studies is PhD Programme and the Centre focuses on Arab and non-Arab countries of West Asia and North Africa. The Centre encourages inter-disciplinary research on a wide range of themes and issues pertaining to history and culture of the region, political, economic and social systems, foreign policy-making and behaviour, inter-and intra-state conflicts, geo-political changes and challenges, terrorism and national/regime security, social movements including feminism, role of religion in politics and ethnic/sectarian assertions, Indian diaspora and India's West Asia policy. Given its embedded complexity, the region provides a unique setting wherein the disciplinary boundaries of International Relations (IR) and Area Studies (AS) overlap. It is, indeed, the testing ground for positivist as well as post-positivist theories and approaches. Apart from offering B.A. and M.A. Courses, the Centre also organizes regular seminars, conferences, special lectures and workshops.

For further details about the Centre, visit the JNU website: <http://www.jnu.ac.in/sis/cwas>

(xiii) Centre for Comparative Politics and Political Theory

Comparing Global Politics require knowledge of the distinctive political and cultural practices in the Non European regions of the world.

Centre for Comparative Politics and Political Theory offers researchers the opportunity to specialize in Global Political Thoughts and Practices with an emphasis on: political thoughts from the non-Western world. Through its M.A. and Ph.D. courses the faculty at the Centre offer specialized knowledge skills to make the scope of 'Comparison' wide enough to include thought and theories from the non-Western world. Research at CCPPT aims to offer a strong foundation in multiple Knowledge worlds and in their distinctive Political thinking. The Unique comparative vision of the Centre's research design attracts bright young scholars from varied disciplinary backgrounds including graduates from IITs for its Ph.D. Programme.

The Centre offers Ph.D. programme. It also offers Four M.A. core courses (Political Thought I, Political Thought II, Comparative Political analysis; Indian Political System) to the students of M.A. in Politics programme of the School.

For more details about the Centre visit the JNU website : <https://www.jnu.ac.in/sis/ccppt>

(xiv) Human Rights Studies Programme

The admission to Ph.D. programme in Human Rights is intended to offer a unique opportunity to extensively research important themes/issues of human rights and duties in contemporary global politics from an interdisciplinary perspective.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sis-human-rights-studies-programme>

(xv) Energy Studies Programme

The admission to Ph.D. programme of Energy Studies aims at to offer opportunity to undertake research on Contemporary Themes and Issues in an inter-disciplinary perspective.

ELIGIBILITY CRITERIA:**Ph.D.**

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Eligibility
1	School of International Studies (SIS)	Human Rights Studies Programme – HRSH (846)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree in the field of human rights or allied subjects such as Law, History, Sociology, International Relations, Political Science with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. or equivalent degree with at least 55% marks of a recognized University/Institution in the field of human rights or allied areas (with dissertation/seminar/viva) or one year M.Phil. degree with 55% marks in the field of human rights or allied areas with additional one year research experience of a recognized University/Institution and one publication in the field of human rights or allied areas and 55% marks or equivalent in Master's Degree.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

2		Energy Studies Programme – ESPH (847)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. or equivalent degree with at least 55% marks of a recognized University/Institution in the field of energy studies or allied areas (with dissertation/seminar/viva) or one year M.Phil. degree with 55% marks in the field of energy studies or allied areas with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>
---	--	---------------------------------------	---

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Canadian, US and Latin American Studies (CCUS&LAS)	Canadian Studies – CANH (826)	<p>Candidates for admission to the Ph.D. Programme must have Master's Degree in any discipline with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>
2		Latin American Studies – LAMH (828)	<p>Candidates for admission to the Ph.D. Programme must have Master's Degree in any discipline with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>
3		United States Studies – USSH (827)	<p>Candidates for admission to the Ph.D. Programme must have Master's Degree in any discipline with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for European Studies (CES)	European Studies – EUPH (829)	<p>Master's Degree in the field of Political Science, International Relations, Economics, History, Sociology, Defence/Strategic Studies or MA in any of the language officially recognised by the EU with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. Degree in European Studies with at least 55% marks of a recognized University/Institution (with dissertation/ seminar/viva) or one year M.Phil. in European Studies with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for International Legal Studies (CILS)	Int. Legal Studies – ILGH (830)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree (with international law as one of the core/elective courses) or Masters Degree in the field of Law (preferably in International Law) with 55% marks or an equivalent Grade in a point scale wherever Grading system is followed.</p> <p>OR</p> <p>M.Phil Degree in International Law with 55% marks or equivalent Grade in a point scale wherever Grading system is followed and a Master's Degree.</p> <p>Relaxation to SC/ST/OBC (Non-Creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for International Trade & Development (CITD)	Int. Trade & Development – ITDH (831)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – Obtained two-year Master's degree in Economics with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained M.Phil. degree with at least 55% marks of a recognized university in Economics/ International Trade and Development (with dissertation/ seminar/viva). Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for East Asian Studies (CEAS)	Chinese Studies – CHIH (832)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree in Political Science, History, Economics, International Relations and Area Studies with at least 55% marks or Master Degree in Humanities and other Social Science with 55% Marks. OR Obtained two years M.Phil. Degree in relevant discipline (Chinese studies/Japanese Studies/Korean Studies respectively) with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. in relevant discipline (Chinese studies/Japanese Studies/Korean Studies respectively) with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.
2		Japanese JPIH (833)	
3		Korean KOIH (834)	

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for International Politics, Organisation and Disarmament (CIPOD)	International Politics – INPH (835)	Only those candidates shall be considered for admission to the Ph.D. Programme who have: A Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR A two-years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.
2		International Organisation – ORGH (837)	
3		Diplomacy and Disarmament – DADH (838)	
4		Political Geography – POGH (836)	

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Russian and Central Asian Studies (CR&CAS)	Russian & Central Asian Studies – RCAH (839)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for South Asian Studies (CSAS)	South Asian Studies – SASH (840)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Indo-Pacific Studies (CIPS)	Indo-Pacific Studies – IPSH (841)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Inner Asian Studies (CIAS)	Inner Asian Studies – IASH (842)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for African Studies (CAFS)	African Studies – AFSH (843)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for West Asian Studies (CWAS)	West Asian Studies – WASH (844)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Comparative Politics and Political Theory (CCPPT)	Comparative Politics and Political Theory – CPTH (845)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks from a recognized University/Institution (with dissertation/seminar/viva) or One year M.Phil. with 55% marks with additional one year research experience of recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

2. SCHOOL OF LANGUAGE, LITERATURE AND CULTURE STUDIES

In the age of globalization, the effective use of language ensures the success of any venture or endeavour, including forming alliances and partnerships at the national and international levels. Against this background, the significance of learning languages has increased manifold. Not only do we use language for expressing and exchanging our thoughts and ideas but it also helps us in understanding and appreciating the culture, tradition and customs of other societies. Hence, learning a language in addition to one's own mother tongue provides an informed and nuanced access to the literature, culture and civilization of the country in which the language is rooted. The School of Language, Literature and Culture Studies (SLL&CS) in Jawaharlal Nehru University (JNU) was set up with this objective of instilling a spirit of critical engagements with the concerned culture.

The School of Language, Literature and Culture Studies (SLL&CS) is not only one of the largest Schools of the university but also is a pioneer and premier institution in the country which offers teaching and research in major foreign languages, literature and culture studies. The School has 12 Centres namely, Centre for Arabic and African Studies, Centre for Chinese and South-East Asian Studies, Centre for English Studies, Centre for French and Francophone Studies, Centre of German Studies, Centre for Indian Languages, Centre for Japanese Studies, Centre for Korean Studies, Centre for Linguistics, Centre for Persian and Central Asian Studies, Centre of Russian Studies and Centre of Spanish, Portuguese, Italian and Latin American Studies.

(A) PROGRAMMES OF STUDY

Centre of Studies, Programme of Study & Languages

1. Centre of Persian and Central Asian Studies

Ph.D. in Persian

2. **Centre of Arabic and African Studies**
 - a. Ph.D. in Arabic
 - b. *Diploma of Proficiency in Hebrew
3. **Centre for Japanese Studies**
Ph.D. in Japanese
4. **Centre for Korean Studies**
 - a. Ph.D. in Korean
 - b. * Diploma of Proficiency in Mongolian
5. **Centre for Chinese & South-East Asian Studies**
 - a. Ph.D. in Chinese
 - b. * Diploma of Proficiency in Bahasa Indonesia
6. **Centre for French and Francophone Studies**
Ph.D. in French
7. **Centre of German Studies**
Ph.D. in German
8. **Centre of Indian Languages**
 - a. Ph.D. in Hindi
 - b. Ph.D. in Urdu
 - c. Ph.D. in Hindi Translation
 - d. Ph.D. in Tamil
9. **Centre for Linguistics**
Ph.D. in Linguistics
10. **Centre for English Studies**
Ph.D. in English
11. **Centre of Russian Studies**
Ph.D. in Russian
12. **Centre of Spanish, Portuguese, Italian and Latin American Studies**
Ph.D. in Spanish

***Part Time Programme**

(B) CENTRES OF THE SCHOOL

1. Centre of Persian and Central Asian Studies

The Centre of Persian & Central Asian Studies in Jawaharlal Nehru University was established on the 7th of January 1971 as part of the Centre for Afro-Asian Languages (CAAL). It soon emerged as a prominent seat of Modern Persian Studies all over India. The Persian world at large began to appreciate the language teaching programs of the Centre which was unique of its kind in India. The Cultural Foundation of Iran (*Bonyad-e-Farhang*) took keen interest in the academic development of the Centre and provided it with **language laboratory**. This was the only University having the facility of language lab for learning Persian in India. Keeping the national character in view, JNU allows teachers and students of other universities to formally avail themselves of the service of the lab during vacations. The language laboratory is being used to enhance language proficiency of the students and develop their skill in the art of interpretation as well. Besides Modern Persian Studies, it also excels in Translations, Area Studies of Iran, Afghanistan, Tajikistan, Uzbekistan; Indo-Iran Relations; Ancient Iranian Studies, History of Persian Language and Literature and Stylistics in Modern Persian Literature - the topics which are exclusively taught in Centre like Sufism; Medieval Indian Culture and Civilization; Indo-Persian Literature and a host of other academic topics that come within the purview of Persian & Central Asian Studies are also given due place in the broad curriculum of the Centre.

Keeping in view the utility of inter-disciplinary approach, the Centre also offers service courses to the students of the Centre of Historical Studies (SSS). Special Course of Persian for the PG students of Urdu in CIL are being taught by the faculty members of Centre every semester. In addition, the following courses are successfully conducted by the Centre each academic year:

(A) Five Optional Courses for the UG students of various Centres of the School.

(B) Two Tool Courses for the undergraduate students of various Centres of the School.

In due course of time, the Centre developed in size and diversified its academic programs. Today it offers courses of Persian and Central Asian Studies, which cover entire gamut of language, literature and culture of Iran; Afghanistan, Tajikistan, Uzbekistan, Turkmenistan & Turkey. Ph.D. Course of Persian are being taught here with professional skill and scientific methods.

The teachers and students of the Centre of Persian & Central Asian Studies in JNU are continuously engaged in modern researches based on world interactions and comparative studies. The faculty members of the Centre, apart from teaching, take keen interest towards participating in different national and international seminars/conferences. The Professors of the Centre are regularly invited by different universities to deliver lectures to teachers from all over India.

Ph.D. programmes in Persian: The courses offered by the Centre include Advance Translation, Interpretation, Audio-Visual, Literature, Culture, Area Studies, Comparative and Interactive Studies etc. The students are trained in research methodology and comprehensive history of Persian Language and Literature. Persian Studies in India specially the writings of Indian Scholars in Persian are the salient features of PhD program. Following are the major areas which the Centre has identified as thrust areas: 1. Contemporary Persian Literature-New Trends, 2. Interactive Literature, 3. Indo-Iran Relations, 4. Area Studies (Iran, Afghanistan, Tajikistan, Kazakhstan, Uzbekistan, and Azerbaijan), 5. Development of Pashto program up to the level of post-Graduation (MA Integrated) , 6. Centre is actively pursuing project in the area of "Indian Impact on the Persian World: Compilation of Thematic Urdu-Persian Encyclopedia of Language, Literature and Culture." 7. Introduction of Kazak, and Turkman Languages.

Note: Computer Based Test (CBT) for Ph.D. shall be conducted in the Persian language

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/cpcas>

2. Centre of Arabic and African Studies

The Centre offers full time Ph.D. programmes in Arabic Language, Literature and Culture. The salient features of these programmes are intensive specialised training in Arabic Language with particular focus on developing communication skills, oral, written as well as translation. Subsequently, students are gradually exposed to and provided deep insight about the culture and literary heritage of the Arab World through both classical and contemporary texts. In recent years, the Centre has emerged as one of the most prominent centres among all the Indian Universities specially in the field of modern Arabic Language and specialisation in its literature.

Ph.D. Programme: The Ph.D. programmes in Arabic have been designed to inculcate interest for research in different areas of Arabic and Islamic literature, culture, language and history.

The centre also plans to develop thrust areas such as:

- A. Classical Arabic language and literature
- B. Indo Arab relation in the field of contemporary literary exchange
- C. Indo African Studies: social cultural and literary aspects
- D. At the moment, the centre offers optional courses in Hebrew at B.A. level. It also offers COP & DOP courses in Hebrew.

Note: Computer Based Test (CBT) for Ph.D. shall be conducted in the Arabic language.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/caas>

3. Centre for Japanese Studies

The Centre was set up in 1973 and it is one of the oldest departments of Japanese language, literature and culture learning in India. Presently, named as Centre for Japanese Studies (CJS), it is one of the centres of excellence in the South Asia, where the programmes ranging from B.A. to Ph.D. are offered. There is a three-year undergraduate degree programme, two year post graduate degree programme and Ph.D. programme. The undergraduate courses are designed for making a beginner to acquire not only the language skills & efficiency but also to impart basic knowledge about the history of Japanese literature, culture, history, society etc., so that by the end of the third year, the student will have sufficient command over the language as well as society and culture of Japan. The postgraduate courses in the centre envisage students to pursue higher level of expertise, using Japanese Language as a tool in the areas of Japanese Literature, Culture, Linguistics, Translation and Interpretation. Under the Ph.D. programme, students pursue further research in fields related to Japanese Language, literature, culture, society etc.

Ph.D. in Japanese: The research scholar is required to submit a thesis on a topic of his/her choice from the field of Literature, Language, Comparative and Contrastive Linguistics.

Note: Computer Based Test (CBT) for Ph.D. in Japanese shall be conducted in the Japanese language.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/cjs>

4. Centre for Korean Studies

The Centre is one of the biggest academic centres of Korean Language, Literature and Culture Studies in the Indian Subcontinent. It offers Ph.D. programme in Korean Language, Literature and Culture Studies. Korean language was first introduced in the Centre in 1976 as a Pre-Degree Diploma course. It was upgraded to a full-time B.A. (Hons.) programme in 1995 and M.A. in 1998. This was part of the 'Centre for Japanese, and North East Asian Studies' (CJNEAS), the nomenclature of which was changed to 'Centre for Japanese, Korean and North East Asian Studies' (CJKNEAS) in 2005. It became an independent centre- "Centre for Korean Studies (CKS)" in August, 2013. Over the years it has grown into one of the largest Centres of the SLL&CS in JNU. The Centre also offers part time certificate and diploma courses in Mongolian Language.

Ph.D. in Korean: The research scholar is required to submit a thesis on a topic of his/her choice from the field of Literature, Language, Comparative and Contrastive Linguistics, Culture or Society.

Mongolian Language Programme: The Centre also offers Part-Time one-year Diploma of Proficiency in Mongolian Language.

Note: Computer Based Test (CBT) for Ph.D. in Korean language shall be conducted in the Korean Language.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/cks>

5. Centre for Chinese & South-East Asian Studies

A full-time three-year B.A. (Hons.) and two-year M.A. in Chinese language at the Centre have been attracting and inspiring both the Indian and foreign students for over four decades. The Centre offers an intensive specialized training in modern Chinese language with particular emphasis on the commonly spoken language (putunghua) in present day China. Apart from having proficiency in the language, the students are gradually exposed to the cultural and literary heritage of China through both classical and contemporary texts.

Ph.D. in Chinese: The broad areas of research include:

1. Chinese Culture Studies
2. India-China Civilizational Interaction through Ages
3. India-China colonial connections
4. Contemporary Chinese Literature & Literary Theory & Criticism
5. Chinese Literary History
6. Chinese Language Linguistic Profile and Linguistic History
7. Theory and Practice of Translation
8. Structure and Styles of Modern Chinese

For Ph.D. programme are required to send a detailed research proposal of at least 3000 words, identifying the specific theme, statement of the problem, preliminary review of literature, and research methodology. It is desirable that in JRF category the candidate has one or two publications in academic journals or books.

DOP in Bahasa Indonesia: The Centre also offers (Part-time) Diploma of Proficiency programmes in Bahasa Indonesia.

Note: Computer Based Test (CBT) for Ph.D. shall be conducted in the Chinese language.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/cc&seas>

6. Centre for French and Francophone Studies

The Centre is actively engaged in teaching and research in French and Francophone Studies with a view to promoting an interdisciplinary approach to learning. The Centre offers full-time courses at the level of Ph.D. Teaching is carried out through the medium of the French Language.

Ph.D.: A student admitted to the Ph.D. programme is required to clear prescribed courses on Methodology of research, linguistics, theories of translation, literature. The broad areas of research for Ph.D. include:

1. Translation Studies
2. Didactics of Language and Culture
3. French & Francophone Literature
4. Mass Media
5. Culture Studies
6. Language Studies
7. French Thought & Western Thought

Note: Computer Based Test (CBT) for Ph.D. shall be conducted in the French language.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/cffs>

7. Centre of German Studies

The Centre offers a research programme (Ph.D.).

PhD: The Centre of German Studies offers Ph.D. programme in German Studies comprising of two semester of course work and dissertation. At the time of the interview, Ph.D. Candidates seeking admission to the Centre are required to bring with them a synopsis of their research proposal (about 3000 words).

Note: *Computer Based Test (CBT) for Ph.D. shall be conducted in the German language.*

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/cgs>

8. Centre of Indian Languages

The Centre is a research-oriented Centre of higher studies for promoting inter-disciplinary approach and comparative perspective of literary studies. The centre undertakes socially relevant and intellectually stimulating research in various Indian languages. At present, the Centre has facilities for teaching and research in Hindi, Urdu, Hindi Translation, Tamil, Kannada, Odia and teaching in Bangla & Marathi are likely to be introduced in future. Efforts are being made to introduce Punjabi, Malayalam & Telugu language and literature teaching in the Centre. The Centre has made innovations in its teaching and research programmes related to Hindi, Urdu and Tamil languages, literature and their cultures. The Centre is perhaps the only Centre of its kind in India where not only common courses in Hindi, Urdu and Hindi Translation at M.A. level are being taught but also faculty and students are engaged in comparative and integrated research in these languages and other Indian and foreign languages. The Centre for Indian Languages offers courses at M.A. level with special focus on History of language and literature, Indian and Western literary theories, literary texts and their aesthetic and sociological appreciations.

The Centre has Ph.D. programme in Hindi, Urdu and Tamil language and literature with special focus on the Areas like Historiography, Classic and Ancient, Medieval, Modern and Contemporary Literature, Social Perspective of Literature, Women Literature, Dalit and Adivasi Literature, Comparative Studies of literature and Emerging Literary trends in Literature.

The thrust areas of research programme in Ph.D. in Hindi Translation are History/Tradition, Tools, Theory of Translation in Indian Perspective and comparative studies including different prospects of translation.

Programmes of Study:

The Centre offers Ph.D. in Hindi, Urdu, Hindi Translation and Tamil. Apart from service courses in Hindi, Urdu, Tamil & Hindi Translation like Tool and Optional courses.

Ph.D. programme in Hindi, Urdu Tamil & Hindi Translation: Ph.D. programme at the Centre consists of course work and a thesis for Ph.D.

Optional & Tool courses in Hindi, Urdu, Kannada & Odia: The optional courses meant for those who have basic knowledge of language and literature and need the further proficiency in language, literature and culture. The course is spread over 4 semesters. Whereas tool course is an elementary language programme for beginners. The course is spread over two semesters.

Short term courses for Foreign/casual students in Hindi and Urdu: Centre offers short-term courses in Hindi & Urdu for foreign students. The duration of the course varies from six months to one year. The course covers script, grammatical skills, language proficiency, knowledge of culture of respective language and literary appreciation.

For more details about the Centre, visit the JNU website : <https://jnu.ac.in/sllcs/cil>

9. Centre for Linguistics

The Centre offers an Ph. D. research programmes for those who has done Masters in Linguistics. The Centre also offers a wide range of optional courses in Linguistics to undergraduate students of the Centres of foreign languages in the School.

Ph.D. in Linguistics:

The Ph.D. programme allows researchers to engage in almost all areas of language studies. Research works in the following areas have resulted in significant and impressive research outputs: Descriptive Linguistics, Speech sciences including Language Pathology, Generative Syntax and Semantics, Neuro-cognitive Linguistics, Sign Linguistics, Phonological Theory, Indian linguistic theory, Multilingualism, Sociolinguistics, Language Documentation, Applied Linguistics including Language Teaching, Language technology, Semiotics and Philosophy of Language.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/cl>

10. Centre for English Studies

The Centre, recognized by the QS World University Ranking as one of the top 100 departments of English in the world, offers an interdisciplinary programmes of research (Ph.D.). The Centre also offers tool and optional courses in English Language and Literature to undergraduate students of the School majoring in foreign languages.

The research programme Ph.D. is open to postgraduates from many disciplines. This allows for considerable interdisciplinary intellectual interaction. The areas of research include British Literature, Literature in other Englishes, Indian Literatures, Comparative Literature, Translation Studies, Gender Studies, Literary Disability Studies, Contemporary Literary and Cultural Theories, Classical Indian Literary and Aesthetic Theories, Folkloristics, Theatre and Performance Studies, Popular Culture Studies, etc.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/ces>

11. Centre of Russian Studies

The Centre of Russian Studies is one of the leading Centres in India, offering degree courses in Russian Language, Literature, Culture and Translation Studies. Besides, the Centre also offers Optional courses in Russian (4 semesters) to undergraduate students of other Centres of the School of Language, Literature & Culture Studies.

Programmes of Study:

Ph.D. in Russian: The research scholar would be required to complete the course work in the first year (two semesters) comprising courses like Research Methodology, Contrastive Grammar, Language and Thought, Advance Course on Theory of Translation, History of Literary Criticism, Comparative Literature, Study of a Genre - Short Story of the XIX century Russian Literature etc. Scholars can opt for courses either on Language or Literature. At the end of the course work, the scholar would be required to submit his/her research proposal on a topic of his/her choice from the field of Russian Philology – Linguistics, Literature, Methodology of Teaching Russian, Culture and Translation Studies. Upon approval of the proposal the scholar will get 3 years to submit his/her thesis.

Note: Computer Based Test (CBT) for Ph.D. shall be conducted in the Russian language.

For more details about the Centre, visit the Centre's website: <https://www.jnu.ac.in/sllcs/crs>.

12. Centre of Spanish, Portuguese, Italian and Latin American Studies

The Centre initially began its academic programmes as one of the Centres of the then School of Languages, with courses in language proficiency in Spanish. Since then, it has grown into a specialized Centre dealing with language, linguistics, literature, culture and civilization of Spain and Latin America as well as translation studies. In Spanish studies, the programmes go upto the Ph.D. level.

The Centre is a pioneering institution in the country, having prepared students and teachers to take up important assignments involving use of Spanish studies. Besides having provided teaching faculty to a number of academic institutions where Spanish is taught, personnel prepared by the Centre are engaged in such activities as tourism, interpretation, translation, banking and the business sector.

Ph.D.: This programme covers area of hispanic/Portuguese studies and offers courses on Methodology of Research, theories of translation, literature, contrastive linguistics and didactics. The faculty and the students of the Centre regularly avail of the opportunities offered by the active cultural exchange programmes with Spain, Portugal, Mexico, and Italy. A number of protocols of bilateral exchange programmes have been established with Spanish and Portuguese Universities. Each year a number of students from the Centre are selected for scholarships for further studies in these countries.

The Centre has been specially selected as an associate member of the European Union consortium under the MULTIELE (Erasmus Mundus) Program of European Commission to jointly conduct the Master Degree Program in Learning and Teaching of Spanish in Multilingual and International Contexts (www.multiele.org/es/miembros/html). Under this program European participants have to spend at least one semester (Monsoon Semester) in JNU to receive practical & theoretical training in the teaching of Spanish in Multicultural Context of India. This program is open to only Multiele participants from Europe.

Note: Computer Based Test (CBT) for Ph.D. in Spanish language shall be conducted in the Spanish language.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sllcs/cspilas>

(C) SPECIAL FEATURES OF PART-TIME PROGRAMMES

Part-time courses are designed to suit the professional requirements of those who require some knowledge of the language for their areas of specialisation and for professional work where ability to understand the language at elementary level would be an asset.

Diploma of Proficiency (DOP) in Bahasa Indonesia, Mongolian and Hebrew: It is a one year part-time course open to candidates who have completed the Certificate of Proficiency course in the concerned language.

Selection of candidates to part time programmes of study

For DOP Courses: The admission to DOP course in the School will be made on the basis of the performance of the candidates on the basis of merit.

ELIGIBILITY CRITERIA:**DIPLOMA OF PROFICIENCY**

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Chinese and South East Asian Studies (CCSEAS)	DOP-Bhasha Indonesia – BHAD (602)	At least Senior School Certificate (10+2) or an examination recognized as equivalent thereto with a minimum of 45% marks in aggregate and Certificate of Proficiency in the language concerned or an examination recognized as equivalent thereto. The candidates who have obtained their qualification under the pattern of education other than 10+2 will be eligible for admission to the DOP programmes of study if they have successfully completed the first year of Bachelor's degree examination of a University with atleast a minimum of 45% marks.
2	Centre for Korean Studies (CKS)	DOP in Mongolian – MOND (603)	
3	Centre for Arabic & African Studies (CAAS)	DOP in Hebrew – HEBD (604)	

PH.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERH (848)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree in Persian with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil Degree in Persian with at least 55% marks of a recognized University/Institution (with dissertation/ seminar/viva) or one year M.Phil degree in Persian with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBH (849)	Only those candidates shall be considered for admission to the Ph.D. Programme in Arabic who have – Master's Degree in Arabic Language with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil Degree in Arabic Language and Literature with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree in Arabic Language and Literature with 55% marks with additional one year research experience of a recognized University/Institution. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Desirable
1	Centre for Japanese Studies (CJS)	Japanese – JAPH (850)	<p>Only those candidates shall be eligible/considered for admission to the Ph.D. Programme who have –</p> <p>M.A. or equivalent degree in Japanese from a recognized Indian or Foreign university with minimum 55% marks</p> <p>OR</p> <p>Obtained two years M.Phil in Japanese with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil in Japanese with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>	<p>1. Experience of study/research in Japan</p> <p>2. Publication in the proposed field of study.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Korean Studies (CKS)	Korean – KORH (851)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese – CHNH (852)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for French and Francophone Studies (CFFS)	French – FRNH (853)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for German Studies (CGS)	German – GERH (854)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Indian Languages (CIL)	Hindi – HNDH (855)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.
2		Urdu – URDH (856)	
3		Tamil – TAMH (857)	
4		Hindi Translation – HTLH (858)	

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre of Russian Studies (CRS)	Russian – RSNH (860)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish – SPNH (861)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree in Spanish with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil Degree in Spanish with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree in Spanish with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for English Studies (CES)	English-ENGH (864)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Linguistics (CLIN)	Linguistics – LINH (863)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have –</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

3. SCHOOL OF LIFE SCIENCES

BRIEF HISTORY AND PROFILE

The School of Life Sciences (SLS) established in the year 1970 and is celebrating its Golden Jubilee year.

The School offers M. Sc. and Ph.D. degree in Life Sciences. The teaching and research programme in the School was conceptualized as an interdisciplinary program unifying the disciplines of biological sciences from a molecular level to whole organismal level. The experimental approaches undertaken by different research groups include biochemistry, biophysics, cell biology, genetics and molecular biology in organisms representing viruses, bacteria, fungi, plants and mammals.

The teaching programme of the School of Life Sciences has earned a high reputation for its interdisciplinary nature for students from both biological and physical sciences at the Master's and Ph.D. levels. This is made possible by offering remedial courses in physical sciences for Master's students coming from the bioscience stream and in elementary biology for students entering biology after their first degree in physical sciences. The School has an in-house system of continuous review of its academic programmes that allows inclusion of newer areas into research and teaching. The M.Sc. practical laboratories are well equipped to give 'hands-on' training to students in the theory subjects taught to them. Graduates completing their degrees at the School are always sought after by research labs in India and abroad and have performed exceptionally well in the universities, institutes and industries.

HIGHLIGHTS OF OUR TEACHING PROGRAMME

- Molecular, cellular and organismal biology with emphasis on a holistic understanding of the mechanisms operating in living systems
- Experienced Faculty Members with national and international recognitions
- Continuous review of its academic programs that allows inclusion of newer areas into research and teaching
- Well-equipped M.Sc. practical laboratories give 'hands on' training in the subjects taught in theory classes
- M.Sc. dissertation research carried out in SLS laboratories
- Strong Mentoring programme and successful placements of students in India and abroad

Two programmes of Study-

Ph.D (Life Sciences)

Modest support for travel/registration for senior students to attend conference and present their research covering various aspects of advanced research in life sciences.

The School offers core/foundation courses as well as advanced courses for the Ph.D. students. Students are assessed and evaluated throughout the semester by a continuous system of tests, seminars, assignments, mid and end-semester examinations.

Funding:

The School has been receiving funding from various sources as mentioned below :-

- UGC Departmental Special Assistance Programme
- UGC-Resource Networking Program
- University with Potential for Excellence (UPOE)
- DST FIST-I and FIST-II programmes
- DST PURSE Grant

Faculty-level funding:

- Research grants from various national and international funding agencies such as the UGC, DST, DBT, CSIR, ICMR, The European Union, the Wellcome Trust (UK), Swiss Development, USDA, International Atomic Energy Agency (IAEA) etc.

Career and Aptitude Development of our Students

- JNU and the SLS pro-actively support career and aptitude development of its students by the following :
- Students elected to the statutory Student Faculty Committee
- Student representation in the Special Committee (Board of Studies) of SLS
- Organization of the highly successful annual research festival 'BioSparks' by senior Ph.D. students Visiting Scholar seminar 'Meet the Speaker' anchored by students

HIGHLIGHTS OF OUR RESEARCH PROGRAMME

SLS has been on the forefront of research in several important areas/field as reflected by high impact research articles published in peer-reviewed national and international journals of repute. The School has consistently maintained a high level of productivity in terms of publications in reputed peer reviewed journals and books.

- Over 1,600 papers authored by the faculty of the school since its inception.
- Several national and international patents are granted to faculties and students.
- Around 700 students have been awarded Ph.D. degree.

- Some of our Ph.D. students have won the prestigious INSA Medal for Young Scientists.
- Few of our Ph D students are recipient of Prime Minister's Research Fellowship (PMRF) for conducting Ph D research.
- International travel award and best poster and talk prize won by our Students in International Conferences.
- SLS Alumni have obtained independent faculty and Scientist positions in India and abroad.
- Alumni of the SLS have also achieved success in biotechnology industry.
- Alumni have been constantly accepted in top research institutions in India and abroad as post-doctoral fellows.
- Our faculty members have been honoured with recognitions like Padma Awards, Shanti Swarup Bhatnagar Prize, National Bioscience Award, Birla Award, J.C. Bose Award, Bhasin award, member of the Planning Commission of India, elected Fellows of various Academies, The World Academy of Sciences Award, NAAS recognition award, Ranbaxy Award, J.C. Bose Fellowship, SERB-POWER Fellowship, TATA Innovation Fellowship and many others.

RESEARCH INFRASTRUCTURE

- A well-established 24x7 accessible Central Instruments Facility (CIF) with 'state of the art' instruments
- Equipments for Genomics and proteomics research: FACS, MALDI-TOF/TOF, Nano LC-ESI-MS/MS, and real-time PCR.
- Equipments for Cell biology: Fluorescence microscopes, live cell and confocal microscope, Cell sorter/FACS and whole animal imaging system.
- Common Equipments: Ultra- and high-speed centrifuges, spectrophotometers, spectrofluorimeters, time-resolved single photon counting fluorescence spectrometer, atomic absorption spectrometer, isothermal titration calorimeter, phosphorimager, scintillation counter, PCR-machines, gel documentation system, imaging facilities, lyophilizer, ultra-low freezers, water purification system, brain-wave analyzer, oscilloscope, polygraph forelectrophysiological measurements, gene gun, and gammachamber
- Plant cell culture, Glass House for experimental and transgenic plants and animal cell culture facilities and stereotaxic surgical facility for small animals.
- JNU's Advanced Instrumentation Research Facility (AIRF) (<http://www.jnu.ac.in/AIRF/>) with sophisticated equipments are open to all SLS research scholars

In-house Training Opportunities

- Training in Animal Handling
- Training in Radiation Safety
- CIF orientation and equipment usage
- Equipment training in the JNU-AIRF
- English learning through JNU Linguistic Empowerment Cell
- Mathematics learning through JNU Maths Empowerment cell
- Course on Plagiarism awareness and software training through JNU library

ADMISSION PROCEDURE

Ph.D (Life Sciences)

Students would be admitted into the Ph.D. programme into one of the five research groups (see Table below). Key Features of this change:

- **Each candidate has to indicate their choice of any Two of the five research areas (where vacancies are available) in order of their priority in the application form.**
- The entrance exam question paper would cover all aspects of Life Sciences.
- ***Based on the performance in the entrance test, students will be shortlisted group-wise for viva-voce/interview.***
- Eligible candidates would be interviewed by a competent interview board on the basis of their choice of research areas indicated in the application form.
- ***Separate merit list will be prepared for admission to each group and candidates would be offered admission accordingly.***

Instructions for the Candidates short-listed for interview

- Details of instructions for ONLINE interview will be available on SLS website by October 10, 2022. Short-listed candidates are instructed to visit school website and prepare accordingly.

Key Aspects of SLS Ph.D. Program

- There would be an orientation session in the form of faculty colloquium, following which students would be offered a list of vacant seats available with individual faculty members in the chosen research group, and supervisor/laboratory would be assigned there after.
- Each student during their tenure in the SL S would be assigned to a Research Advisory Committee (RAC).

□ For confirmation into the Ph. D. programme, a student has to secure the required qualifying marks. The student, in consultation with the respective Ph.D supervisor, has to submit a synopsis of the research proposal and defend it in an open seminar in the RAC. Upon acceptance by the RAC, the Special Committee of the School would approve the enrollment of the student into the Ph. D. programme.

□ There would be an assessment of progress of each student by the RA Cevery semester.

After sufficient amount of research work has been carried out by the student and with due approval of the RAC, each student would make a presentation in an open seminar detailing their research work, and would become eligible to submit their Ph. D. thesis. Although Ph. D. thesis can be submitted upon completion of at least 2 years of research work, normally it is between 2 to 4 years from the date of confirmation for the Ph. D. program.

A student may apply for an extension for up to two years to submit the Ph. D. thesis, provided the research work has been examined and recommended by the RAC.

- **Lab Allotment:** After new students complete the registration for admission, students would be offered a list of positions/vacancies available with individual faculty members in the respective research groups of the School as per their admission. To orient new students to the ongoing research, the SLS faculty members would highlight their research in a colloquium soon after the completion of the admission process.
- Thereafter, students are required to interact with the faculty members to discuss and decide on joining a laboratory. Mutual consent would be required for the final choice of the laboratory. Each candidate would then be issued an allotment form by the GAC. The allotment forms, duly signed, are to be submitted by the students (having signatures of both the student and the concerned faculty) to the GAC. The GAC would formally designate a supervisor to each student and the list would be immediately displayed.
- It is expected that by following the criteria/procedure given above, every student would get a supervisor. However, in case any student could not find any supervisor, the GAC would allot a supervisor to him/her from the vacancies available in the research group to which the student has taken admission, for that academic year. It is expected that no student would continue without being formally allotted a supervisor beyond the month of September of the year of admission.
- A change of Supervisor is highly discouraged in SLS. Before joining a lab, students should ensure the areas of research, and the lab of their choice is in synchrony with his/her interest. It needs to emphasize that once the lab allotment is done there is no scope for change of lab. However, the extraordinary situation, upon receiving of proposal letter from the student and supervisor, the concerned RAC after reviewing the research progress of the student for at least two years may suggest a change of lab within the research group. In such cases, the student has to submit a fresh Synopsis, which needs to be approved by the concerned RAC and two years residency would re-start from the date of change of lab/supervisor.
- **Unfilled vacancies (laboratory wise) of the monsoon semester will be filled up through interview of JRF category candidates before the winter semester begins. Fresh applications will be invited and students will be admitted for winter semester (2022-23).**

The Ph. D. degree is awarded on the basis of evaluation and recommendation of the thesis by examiners and successful oral defense of the research work by the candidate after fulfilling due requirements as per UGC regulations.

1. Research Groups in the School of Life Sciences

Research in the School of Life Sciences is organized into five thematic research areas. Candidates should indicate their choices for **Two** research areas in the order of their preference in the application form. Each faculty member is listed alongside one Research Group. However, as faculty members in the School of Life Sciences conduct inter-disciplinary research, they may be conducting research in other areas either independently or jointly with faculty members in the other groups.

Research Group		Topics (For a detailed list, see SLS website www.jnu.ac.in/sls)	Faculty Members conducting research in the area mentioned *Faculty not taking students in 2022-23
No. Code	Group Name		
I GONH	Plant Biology; Virology; Biotechnology	Epigenetic regulation of geminivirus pathogenesis, Molecular basis of plant-virus interactions; Molecular Plant Physiology, Plant pathogen interaction, systemic acquired resistance in plants; Crop biotechnology, Functional genomics of abiotic stresses; Plant immunity, Genomics-assisted genetics and breeding, Fungal effectors and their host targets; Plant developmental biology; Comparative and functional genomics, Metabolic engineering and System Biology of plants.	SC(2), AN*, AP*, PKV(2), AS(2), NR(2)
II GTWH	Microbiology; Infectology,	Yeast Molecular and Cell Biology; Membrane transporters and drug discovery; Antibiotic resistance; Microbiome as therapeutics; ESBL and AMR among the Gram negative ESKAPE members; Stress adaptation pathways, cell wall and adhesion processes in <i>Candida albicans</i> , screening of compound libraries for antifungal therapy; Molecular Parasitology	AKM*, AKJ(2); ASK(1), SLP(2), AB*

III GTRH	Genetics; Cell & Molecular Biology; Developmental Biology; Immunology	Genomic Biology of Repetitive DNA and Noncoding RNAs, Cytokines, Transcription Factors, Cell signaling and Disease; Mesenchymal Stem Cells from Bone Marrow and Regenerative Medicine; Molecular Aging; Transcription, chromatin and gene regulation, Nutrient stress regulation of <i>Candida albicans</i> pathogenesis, skin biology and melanogenesis ; Developmental programmed cell death in <i>Dictyosteliumdiscoideum</i> with emphasis on starvation-induced autophagy; Epigenetics and Chromatin remodeling; Gene Regulation; Nuclear Receptor signaling in human physiology and diseases.	PCR*, KN*, SS*, RM(1), NP(1), VY(2)
IV GFOH	Animal Physiology; Neurosciences and Systems Biology; Radiation and Cancer Biology	Brain ageing and Mechanism of Action of Anti-ageing Drug in Rats; Modulatory Effects of Phytochemicals on Carcinogenesis and Genotoxicity in mammalian cell culture and Mouse Models, Tumor Angiogenesis; Regulation of p53 and related genes in cancer cells. Effect of synthetic compounds/drugs/phytochemicals on cell cycle regulation of cancerous and non-cancerous cells. How to overcome tamoxifen resistance in breast cancer cells? Molecular mechanisms and targeting therapeutic strategies on Alzheimer's, Parkinson's Disease & Depression; Therapeutic strategy on Parkinson's Disease; Neural and Molecular Mechanisms of sleep and its function. Learning and memory and Synaptic plasticity; Radiation and cancer therapy	DS*, RPS*, NM*, ACM(1), SKJ(2), ABT(1)
V GFIH	Biochemistry ; Biophysics; Bioinformatics; Nanobiology	Macromolecular crystallography on human disease related proteins, Rational structure-based Drug Design and Vaccine Development; Structural and functional studies of novel <i>E. histolytica</i> proteins, Plant-virus protein interactions and their structural studies; Biochemistry of GPI anchor biosynthesis, regulation and function in <i>Candida albicans</i> ; Protein aggregation and prevention by selected natural compounds and engineered nanoformulations, Development of novel biomaterials for biomedical applications.	AKS(2), SGN(2), SSK(1), KK(1)

Number in parenthesis indicates student intake for a particular laboratory during 2022-23 academic session.

Faculty Members: Prof. Pramod Rath (PCR), Prof. K. Natarajan (KN), Prof. Shweta Saran (SS), Prof. Supriya Chakrabarty (SC), Prof. Ajay Kumar Saxena (AKS), Prof. Deepak Sharma (DS), Prof. Rana Pratap Singh (RPS), Prof. Ashis Kumar Nandi (AKN), Prof. Ashwani Pareek (AP), Prof. Alok Kumar Mondal (AKM), Prof. Atul Kumar Johri (AKJ), Prof. Sneha Sudha Komath (SSK), Prof. S. Gourinath (SGN), Prof. Arun S. Kharat (ASK), Prof. Praveen Kumar Verma (PKV), Prof. Ananda Sarkar (AS), Dr. Neelima Mandal (NM), Dr. Sushil Kumar Jha (SKJ), Dr. Rohini Muthuswami (RM), Dr. Amal C. Mandal (ACM), Dr. Sneha Panwar (SLP), Dr. AshuTiku (ABT), Dr. NitiPuri (NP), Dr. NiralaRamchiary (NR), Dr. Karunakar Kar (KK), Dr. Abhisheka Bansal (AB), Dr. Vikash Yadav (VY).

For further details, please visit SLS website (www.jnu.ac.in/sls)

ELIGIBILITY CRITERIA:

Ph.D.

Sl No.	Name of School	Sub. Code & Sub. Code Number	Eligibility
1.	School of Life Sciences (SLS)	Life Sciences – Group-I GONH (892)	Master’s degree or equivalent with at least 55% marks or equivalent Grade ‘B’ in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed) in Life Sciences/Biological, Physical, Chemical, or Agricultural Sciences/Biotechnology/Botany/Zoology/Bioinformatics/Genetics/Microbiology /Systems Biology/ any other branch of biological sciences or MBBS with 55% marks or equivalent. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.
2.		Life Sciences Group-II – GTWH (893)	
3.		Life Sciences Group-III – GTRH (894)	
4.		Life Sciences Group-IV – GFOH (895)	
5.		Life Sciences Group-V – GFIH (896)	

4. SCHOOL OF SOCIAL SCIENCES

(A) PROGRAMMES OF STUDY

The School of Social Sciences is the largest post-graduate School in the University. It has M.A., MPH and admission to Ph.D. programmes in its various Centres. It has no undergraduate programme of its own, even though it offers a few under-graduate courses for students of School of Language, Literature & Culture Studies. The School has thirteen Centres plus one group, in which regular admission takes place in different programmes as detailed in the following table:

Centre, Programme of Study & Field of Study

1. **Centre for Economic Studies and Planning**
Ph.D. in Economic
2. **Centre for Historical Studies**
Ph.D. in Historical Studies
 - a. Ancient History
 - b. Medieval History
 - c. Modern History
3. **Centre for Political Studies**
Ph.D. in Political Studies
4. **Centre for the Study of Regional Development**
Ph.D. in Regional Development
 - a. Economics
 - b. Geography
 - c. Population Studies
5. **Centre of Social Medicine and Community Health**
 1. Ph.D. (Social Sciences in Health)
 2. Ph.D. (Public Health)
6. **Centre for the Study of Social Systems**
Ph.D. in Social Systems
7. **Centre for Studies in Science Policy**
Ph.D. in Studies in Science Policy
8. **Centre for Philosophy**
Ph.D. in Philosophy
9. **Zakir Husain Centre for Educational Studies**
Ph.D. in Education and Studies
10. **Centre for Women's Studies**
Ph.D. in Women's Studies.
11. **Centre for the Study of Social Exclusion and Inclusive Policy**
Ph.D. in Social Exclusion and Inclusive Policy
12. **Centre for Informal Sector and Labour Studies**
Ph.D. in Informal Sector and Labour Studies
13. **Centre for Media Studies**
Ph.D. in Media Studies
14. **Group of Adult Education**
Ph.D. in Adult Education

The School has a lively academic ambience. The teaching and research programmes in the School have certain innovative elements. While ensuring rigorous discipline- oriented training in each Centre, interest is generated in multi-disciplinary study and research, by allowing students to take courses in other Centres depending upon their aptitude as well as the relevance of the courses to their main disciplines and areas of research interest.

(B) CENTRES OF THE SCHOOL**1. Centre for Economic Studies and Planning**

The Centre has established itself as a premier institution for teaching and research in Economics, and has been recognized by the UGC as a Centre for Advanced Studies. The richness of the teaching and research programmes is reflected in the structure of the courses and the research output of faculty and research scholars. The faculty has a distinguished record of publications of books, monographs and articles, as well as outreach through more accessible articles in the popular media.

The Centre strives to ensure that the faculty is easily accessible to the students. The pedagogic emphasis is on analysis, understanding and learning, rather than on memorizing. Students have to write term papers, make presentations, solve problems, appear in open book examinations, etc. as part of a continuous evaluation process.

Admission to the Ph.D. programme

A very limited number of scholars are admitted to the Ph.D. programme.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/cesp>

2. Centre for Historical Studies

Recognised as a Centre for Advanced Studies by the UGC, The Centre for Historical Studies is a premier centre of teaching and research in history within India. It is also one of the oldest centres in the School of Social Sciences having launched its programme of Post Graduate Studies in 1970 under the guidance of eminent historians like Professors S. Gopal, Romila Thapar, Bipan Chandra and Satish Chandra. A major focus of the Centre continues to be on cutting-edge research that can expand the frontiers of the discipline.

Admission to Ph.D. programme

The Centre focuses its teaching and research on Ancient, Medieval, Modern and Contemporary History with particular emphasis on the study of economic, social and cultural changes. Students who learn to handle different types of source material are encouraged to work on themes that cut across these chronological divides.

Ancient History: Emphasis is placed on training students in different disciplines: archaeology, text studies, languages, epigraphy, and numismatics. In particular, study and research on the following are encouraged: evolution of social structure, gender and sexuality, political process, agrarian relations, art and architecture, urbanization, trade, religion, philosophy, literary culture, intellectual history, cultural history, historical geography.

Medieval History: study and research includes structure and change in medieval Indian Society, state systems, agrarian development, growth of trade and commerce, ideology and culture. Emphasis is also given to the study of two major transitions in Indian History—from ancient to medieval and from medieval to colonial regimes, through a reconstruction of structural continuities and cleavages encompassing the institutional, technological, social, economic and ideological development.

Modern History: Apart from the study of social changes and evolution of agrarian, industrial and class structures, emphasis is placed on the study of colonialism in its economic, political and cultural dimensions, nationalism and the national movement, peasant, trade union and tribal movements, the growth of left-wing parties and groups and developments in the cultural, intellectual and ideological fields.

The focus is on the study of colonial and contemporary studies. Themes include: colonialism and nationalism, capitalism, state and law; labour and gender history, economic and social history, cultural and intellectual history, legal and environmental history; histories of peasant and tribal societies, histories of castes and communities, histories of domination and subordination; comparative perspectives on Asia, Africa and Europe.

Contemporary History: In this field an effort is made to situate the evolution of contemporary developments, particularly those since World War II, in a long term historical context. Special attention is given to studying the linkages between different aspects of contemporary society viz., the economy, polity, culture, environment, etc., in a holistic manner, i.e. not compartmentalised into the relatively strict boundaries of disciplines such as political science, economics or sociology. Also, an attempt is made to conduct the above studies in a comparative perspective, taking into account the experience of different countries.

At the time of the viva-voce, Ph.D. candidates should come with 1000 word synopsis of their research proposal (six copies). In the interview, they will be asked questions regarding their proposal, primary sources and some of the key books read by them in their M.A. course.

Candidates applying for Ph.D. (History) programme are allowed to exercise only one option, i.e., Ancient History; or Medieval History; or Modern Indian History, and the option so exercised must be clearly mentioned in the appropriate column in the Application Form.

Candidates who qualify are requested to register at the earliest so that they can take full advantage of the tutorial system. Classes normally begin from the end of July. Students are required to check with the CHS office for specific dates. Students are also requested

to attend the Orientation Meeting with the Faculty. This will introduce them to the structure of courses, the system of evaluation and the rules and norms of the Centre. The date of this meeting will be put up on the notice board of the Centre by the first week of August.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/chs>

3. Centre for Political Studies

The Centre is recognized as a premier centre for teaching and research in Political Science. Students who have graduated from the Centre are holding important positions in academic institutions and other walks of public life all over the world. The faculty members have a distinguished record of publications of books and articles in important national and international journals. The Centre offers two programmes of study- MA. and Ph.D. The teaching and research work of the Centre covers four broad sub-fields in the discipline of Political Science. They are: (1) Political Philosophy and History of Ideas; (2) Indian Government, Politics, Institutions and Public Policy; (3) Comparative Politics and International Relations; and (4) Methods of Political Analysis

Admission to Ph.D. programme:

The Centre for Political Studies offers admission to Ph.D. programme in the four core areas of research mentioned above. Those who wish to apply for a research degree are expected to have a strong, detailed and well- developed research proposal for a thesis that can be supervised in the Centre. In addition to the fulfillment of admission requirements, the applicants need to approach the subject with rigor and appropriate knowledge of the field. The candidates must submit their research proposals after qualifying the entrance examination and before appearing for viva voce in the Ph. D programme. The candidates admitted to the Ph.D. programme will be required to complete the prescribed course work in the first year.

4. Centre for the Study of Regional Development

The Centre for the Study of Regional Development came into existence in the year 1971 with the mandate of evolving an inter-disciplinary teaching and research programs with a focus on the issues of regional development in India. This is one of the largest Centres in the School of Social Sciences, offering postgraduate degree programs in Geography, PhD research programs on diverse issues of regional development within the interdisciplinary framework.

Admission to Ph.D. Programme

A limited number of scholars are admitted to the PhD Programme

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/csrd>

5. Centre of Social Medicine & Community Health

The Centre of Social Medicine and Community Health (CSMCH) was established in order to shape and provide academic content to the discipline of public health, making it relevant to the situation in India. It was recognised that the discipline of Preventive and Social Medicine needed a paradigm shift that could only be provided if this Centre was set up outside the confines of a medical college.

Over the last five decades, the Centre has acquired vast experience in evolving problem-oriented interdisciplinary academic programmes in public health, in addition to building an active research base. At the same time, efforts have also been made at establishing institutional links with various academic, research, policy-making and non-governmental organisations.

Under the overall objective of creating academic programmes for making health services meaningful to the people of the country, the Centre has set out as its objective the task of understanding the health problems and health needs of the Indian people. The endeavour is to understand how health problems are shaped by socio-economic factors and to examine the social structure itself, to delineate the structural constraints that contour the scope of health interventions. The task requires an inter-disciplinary approach involving disciplines such as sociology, anthropology, psychology, economics, history, political science, demography, statistics and public administration, apart from the disciplines that are traditionally included in public health. It was for this reason that the Centre was located in the School of Social Sciences. Epidemiology, health service structure, health programme design, health systems research and health policy analysis are important foci for all the programmes.

The Centre offers the following academic programmes:

1. Ph.D. in Social Sciences in Health.
2. Ph.D. in Public Health

The above programmes, the Centre also admits candidates to the Ph.D. programme as per criteria mentioned in the eligibility column. The Centre may prescribe courses to the candidates admitted under the Ph.D. programme.

Courses in public health cover areas such as organization of health programmes, epidemiology, nutrition, maternal and child health, communicable diseases, family planning, research methodology, operations research etc. Courses in social sciences cover concepts perspectives and methods relevant for public health within an interdisciplinary perspective.

During the second semester students are offered a number of optional courses. They also get an opportunity to familiarise themselves with the current issues in public health through an intensive journal club. All students are exposed to group field work in both urban and rural areas as a part of their course work.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/csmch>

6. Centre for the Study of Social Systems

The Centre is recognized as a premier centre for teaching and research in Sociology. This Centre has been ranked among the top 55 best departments in the world for sociology in 2017-18 by QS World Rankings. Students who have graduated from the Centre have distinguished themselves in all walks of public life. Our alumni are present in most leading institutions of higher education and research nationally and globally. Our faculty members have made their mark in the broader world of social sciences with a distinctive intellectual orientation and an illustrious record of publications.

Since its inception in 1971, the Centre has developed a distinctive approach to sociology both in terms of a plurality of theoretical and methodological orientations as well as in a variety of substantive fields of empirical enquiry. Equal focus is therefore given on the teaching of qualitative and quantitative methods on the one hand and on philosophy of methods on the other. From its very inception both teaching and research in our Centre have shown an engagement with pressing questions of development and marginalization, social movement and social justice. The CSSS is recognized as a Centre for Advanced Studies in the discipline of sociology by the UGC.

The teaching and research work of the Centre covers three aspects of sociological studies: (i) Theory and Social Thought; (ii) Methodological Orientation and Methods of Social Research; (iii) Substantive studies on different dimensions of social life.

Admission to Ph.D. Programme

Those who wish to apply for a research degree will have to submit a strong, detailed and well-developed proposal for a thesis that can be supervised in CSSS.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/csss>

7. Centre for Studies in Science Policy

Studies in Science Policy is an interdisciplinary field drawing upon a range of social, natural and applied sciences, engineering, and technology disciplines to enhance our understanding of the interactions between science, technology and society. The primary focus of teaching and research at the Centre is on areas relating to science and technology policy analysis; sociological and historical perspectives in science and technology; economics of technological change, sustainability, innovation studies, technology futures analysis, gender relations, intellectual property rights (IPR), scientometrics, environment, agro-foods, health policies, health economics, and importance of social sciences in public health.

Please visit: https://www.jnu.ac.in/sss/cssp-programme_of_study

The Centre offers Ph.D. programmes.

Admission to Ph.D. Programme

Scholars seeking admission to Ph.D. programme are required to bring with them a research proposal of 1800 to 2000 words at the time of interview. The research proposal is expected to indicate a research, theme, a statement of the research problem, objectives, research questions, methodology and a brief review of literature along with a list of references.

8. Centre for Philosophy

The Centre for Philosophy is one of the premiere places for the philosophical education and research in India. The Centre is driven by the thought that philosophical knowledge is the backbone of our educational process and we must try to inculcate philosophical thinking in every aspect of our modern day life. An engagement with basic philosophical issues and problems strengthens not only our imagination and critical ability as knowledge seekers but also it offers new dimensions to understanding about the world in general. The Centre aims to provide a strong platform for philosophical training and offer opportunities for pursuing cutting edge research in new philosophical areas, over and above the existing ones.

The academic programmes of the Centre are intended to provide students with a deeper knowledge and rigorous foundation in the discipline while simultaneously encouraging students to be committed to thinking critically about the problems of our contemporary society. The teaching and research works are designed to educate students to read and engage with original philosophical texts, both classical and modern (Indian and Western), with a high degree of methodological awareness. Through our programmes we allow, inspire, and train our students to delve into the philosophical issues of diverse traditions and multi-disciplinary areas. In short, we provide educational training that helps students to philosophically think about everything that surrounds them in their everyday world of experience.

PhD programme:

The Centre offers PhD programme for competent students with MA degree in the relevant field. We welcome application in most of the major areas of philosophy. We encourage students to go through our faculty profiles and the area of their interest before applying.

Students are expected to submit a well-articulated research proposal (2000-3000 words) at the time of submitting their applications.

Students who do not have MPhil degree will be required to complete two-semester course work training of 14 credits. Their performances are evaluated based on term-paper presentation cum submission and written tests.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/cp>

9. Zakir Husain Centre for Educational Studies (ZHCES)

The Centre focuses on the study of education from social science perspectives. Orientation in teaching and research programmes are structured around social science disciplines of Economics, History, Psychology and Sociology. Accordingly, there are four streams of research. The Centre currently offers a programme of study leading to the degree of Ph.D in Economics of Education, History of Education, Psychology of Education and Sociology of Education.

Economics of Education: Students are introduced to the economic issues in education both from the perspectives of theory as well as applied research for analyzing the problems related to human resource development. Wider issues of education from the development economics perspective receive special attention. Major topics include concept and measurement of human capital, investment decisions in education, demand and supply of education, financing of education, university governance, applied economics of education, education and labour market, educational inequality, educational policy issues, migration of knowledge workers, trade in education services, etc.

History of Education: The research programme in the history of education at the Centre has evolved into three distinct areas. The first one deals with the growth of modern schools, access to these schools in terms of gender and caste, the emergence of the system of state and private funding, curriculum, text books and educational debates during the British rule in India. The second dimension has to do with the evolution of the system of higher education, again from the eve of colonialism into contemporary times. The focus is on the social history of higher education, with an emphasis on issues of globalization and naturalization of models of the university, and the transformation of knowledge ideals in changing political and socio-economic contexts. The attempt is to study historically the impact of globalization of the university, on the one hand, and the formation of academic disciplines within the university and research institutes, on the other. And finally, a third area has to do with the history of science and technology in India, where in addition to looking at the philosophical, and social dimensions of the history of science education, research also focuses upon contexts, policies, and strategies of science communication and popularization.

Psychology of Education: The co-constitutive nature of cultural-historical processes and the psychological phenomena is problematized. The existing theoretical traditions within Psychology and their transformative roles in bringing about changes in the educational processes are examined. Areas such as cultural roots of learning with specific emphasis on language and mathematics learning, everyday and scientific cognition, Meta-reflexive capacities, theory of mind, reflexive pedagogy, personality, motivation, social cognition, inter-group dynamics and identity processes, etc. and their implications for curricular and pedagogic practices in a multicultural-multilingual society are analyzed.

Sociology of Education: Special emphasis is placed on issues relating to diversity, equity and social justice, structure and processes of schooling and higher education, social and educational policy, social impact of globalization and privatization of the educational systems, and other contemporary concerns of education in the 'developing' world. Interface among and between technology, Urban and education too constitute an emerging research concern within sociology of education at the Centre. Basic concepts and approaches in sociology, linkages of education with socialization, stratification, social change and mobility, social and educational inequality, etc. are some of the areas discussed from multiple critical theoretical standpoints available in the discipline of sociology and sociology of education. Classroom teaching focuses on a comparative analysis of diverse social contexts within India and also other countries.

The scheme of teaching is as follows:

- A compulsory course in Research Methods in Social Sciences as applied to Educational Studies, focusing on quantitative and qualitative techniques of data collection.
- A compulsory course on Education in India: Social Science Perspectives focusing on various dimensions of the Indian education system.
- Introductory and advanced level courses in Economics of Education, Sociology of Education, History of Education and Psychology of Education are offered in the first and second semesters.
- A basket of optional courses are also offered in the second semester and students have to opt for one of them. Courses include Economic Policy in Education; Educational Thought in Modern India; Changing Conceptions of the Modern University; Education and Diversity in Multicultural Societies; Culture, Cognition and Mathematics, International Migration and Skilled Diasporas; Multilingualism and Education; Cultural Psychology; and Gender and Education.
- Those applying for Ph.D. should send a detailed research proposal of at least 3500 words, indicating the scope of the problem chosen, preliminary review in the area of literature, perspectives (theoretical and empirical) and methodology of proposed study. This is a mandatory requirement for those who qualify for the viva-voce examination.

The UGC accorded the Centre the status of Centre for Advanced Study (CAS). Earlier, the Centre was also accorded the status of Department of Special Assistance (DSA) and Assistance for Strengthening of Infrastructure for Humanities and Social Sciences (ASHSS) by the UGC.

For more details about the Centre, visit the JNU website: <https://www.jnu.ac.in/sss/zhces>

10. Centre for Women's Studies

The Centre undertakes both innovative, and intensive, interdisciplinary research and teaching, besides providing the space for creating a vibrant community of feminist academics, students, activists and artists concerned with issues of gender, and wider issues of power in society. The Centre regularly organizes lectures, seminars, workshops and film screenings on a wide range of subjects.

Currently, the Centre offers a Ph.D. in Women's Studies. In addition, the Centre also offers Optional courses at the Master's level that are open to students not only in Social Sciences but also to those enrolled in other Schools and Centres of the University. In these, students learn to examine the historical, social, political, economic, and cultural dimensions of gender, while gaining a more complex understanding of the construction of gender and its intersection with other categories of difference, power, and inequality.

(a) Admission to Ph.D. programme

The Centre welcomes applications in all subjects of Social Sciences & Humanities. Ph.D. scholars will be required to complete prescribed course work in the first year after admission, including two Compulsory Courses in Feminist Theory and Social Research and Research Methodologies. Ph.D. candidates seeking admission to the Programme are required to submit a synopsis of roughly 1000 words on a research theme of their interest, indicating its scope, statement of the problem, methods and a preliminary review of literature.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/cws>

11. Centre for the Study of Social Exclusion and Inclusive Policy:

The Centre for the Study of Social Exclusion and Inclusive Policy was created as a centre to document and analyse Social Exclusion and Inclusive Policy in Indian society. The objective is to use theories and concepts from several disciplines to discover, document and analyze various sites and modes of Social Exclusion. The idea is not merely to study the structures and processes of exclusion but also to discover the ways for deconstruction of these structures and identify the unique processes of inclusion and empowerment. The focus is primarily to understand theories and concepts of social exclusion and inclusive policies in reference to caste-class, gender, disability, tribe, religion etc. The Centre brings together the comparative and interdisciplinary framework necessary for teaching and research programme that would study social exclusion and Inclusion given its diverse structural roots and varied forms and manifestations in different social and economic spheres. The thrust of the centre is to study various sites of Social exclusion; and Inclusive policy of Scheduled castes, Scheduled tribes, minorities, disability, old age, gender, child labor, migration, diaspora etc.

The Centre also offers optional courses to MA and B.A on a number of thematic issues such as Histories from the Margins, Agrarian Change and Exclusions; Minorities, Political Economy of Discrimination, Intersectionality of caste class and gender, Dalits and Exclusion, Processes of Marginalizations, Understanding key concepts of inclusion and Policies for Inclusion, Philosophy of Affirmative Action, sociology of Inclusion and Exclusion globalization and issues of exclusion and inclusion, contemporary debates on exclusion and inclusion etc. Students from all social science disciplines can apply for admission to the Centre.

The Centre offers the following courses:

Admission to Ph.D. programme

The Centre offers admission to its Ph.D. programme. Candidates shall have to appear for an entrance examination followed by an interview. Candidates seeking admission to the Ph.D. programme should demonstrate their academic capability by preparing a well-developed research proposal of roughly 2000 words, drawing out a specific theme, statement of the problem, literature review and relevant research methodology.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/csde>

12. Centre for Informal Sector and Labour Studies

Centre for Informal Sector and Labour Studies is one of the newly created Centres with the objective of studying the informal sector which includes non-agricultural workers, agricultural labourers, peasants, fishermen, craftsmen, street vendors, domestic work etc. Since the overwhelming bulk of the working people are located in the informal sector which is also termed as the "Unorganized Sector", the focus of teaching and research in the Centre is on labour processes and working conditions in the unorganised sector in the contemporary world, particularly the developing countries. The Centre offers the following programmes:

Admission to Ph.D. Programme

The Ph.D. programme focuses on interdisciplinary research on Indian informal sector and labour scenario. The programme encourages

to work on themes such as–Political Economy of State, Development and Underdevelopment in the contemporary world, Labour History, Globalization and the changing forms of Labour, Global Production Systems, Informalisation in various sectors, Labour Market, Forms of Employment, Poverty, Migration, Urbanisation, Labour Rights and Regulation, Workers' Organizations and Politics, Trade Unions, Resistance, Peasant Production, Non-farm Economy, Agrarian Change and Rural Development, Political Economy of Care, Discrimination on the basis of Caste, Gender and Community, Common Property Resources, Public Policies in the Unorganised Sector, and Sustainable Development. The objective of the programme is to enable students to understand the linkages between the formal and the informal sectors and between theory and empirical investigations in research work.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/cisls>

13. Centre for Media Studies

Centre for Media Studies (CMS) started in the year 2009 with the idea of becoming the academic location for the study of critical and dynamic developments in the field of Media and their relationship with societal changes through historical and contemporary times. With its first M.Phil. and Doctoral batches passing out in 2016 and 2018, respectively, the centre acquired not only the experience but also insights in the themes, issues and concerns shaping media and media studies that needed to be woven into its ongoing curriculum.

During this time, it has also been able to synergize its academic efforts with the founding vision of the centre and thereby orienting its engagements with the study of different dimensions of Media, i.e., processes, institutions and resultant socio-economic and cultural formations. As has been envisioned in the founding documents, the core areas of the centre's academic activity have been defined in terms of its engagement with

1. Histories of media
2. Politics and economics of media
3. Media and issues of language
4. Media, democracy, and dimensions of rights and justice
5. Media, technologies and cultural industries
6. Media and the nature of connectivity
7. Visual and digital culture

Admission to Ph.D. programme: The Centre for Media Studies (CMS) offers a Ph.D. Programme in the broad areas mentioned above. Candidates are required to submit a synopsis of about 1000-1500 words on a research theme which they intend to study.

For more details about the Centre, visit the JNU website : <https://www.jnu.ac.in/sss/cms>

14. Group of Adult Education

The Group of Adult Education (GAE) conducts research, both theoretical and practical, teaching and outreach programmes in the area of formal and non-formal education. The main thrust areas include 'literacy studies' (e.g. basic literacy, adult literacy, digital literacy, financial literacy, consumer literacy, legal literacy, environmental literacy, health literacy, family literacy, functional literacy, media literacy etc.); adult education; lifelong learning; community education; development education; citizenship education, vocational, education; sustainable livelihoods, social entrepreneurship and continuing education in India and abroad. The GAE focuses on problems of contemporary youth and their lifestyles and the impact of globalization and market practices on the local communities and society with special emphasis on consumer rights and their public awareness. By linking education research, policy and practice in all these areas, GAE makes a special contribution to enhancing access to learning and improving professionalism in social and educational sectors.

Presently, the GAE has faculty members from the disciplines of education, economics, history, political science and sociology. It offers optional courses (including one on research methodology) which are credited by students across other Centers and Schools in the University.

The Group is offering PhD programme for students of social sciences, humanities, arts and media studies and for professionals engaged in development and social sectors.

For more details about the Centre, visit the JNU website : <https://jnu.ac.in/sss/gae>

ELIGIBILITY CRITERIA:

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Desirable
1	Group of Adult Education (GAE)	Adult Education-GAEH (883)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>(a) Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>(b) Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>	In addition to (a) or (b) those candidates who have two years (full-time) work/professional experience in the area of NGO sector, development and social sectors, governmental sector, main 'literacy studies' or work areas (such as basic literacy, adult literacy, consumer literacy, legal literacy, environmental literacy, health literacy, media literacy, citizenship education) with research publication(s) comparable to M.Phil. standard are also eligible for the PhD programme. In this case, such candidates must have obtained their Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Desirable
1	Centre for Informal Sector & Labour Studies (CISL)	Informal Sector & Labour Studies- ISLH (884)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>(a) Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>(b) Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>	In addition to (a) or (b) students with specialization in the areas of informal sector and labour studies. Students from all disciplines in Social Sciences and Humanities can apply and should have 55% marks or equivalent in Master's degree.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Economic studies and Planning (CESP)	Economics Studies & Planning - ECOH (865)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Historical Studies (CHS)	Modern History- MODH (866)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>
2		Medieval History – MEDH (867)	
3		Ancient History – ANCH (868)	

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Political Studies (CPS)	Political Science – POLH (869)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Desirable
1	Centre for the Study of Regional Development (CSRD)	Population Studies- POPH (870)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>	<p>Candidates are admitted to Ph.D. Programme with relevant eligibility/qualification in the field of Geography, Economics, Population Studies and allied/related disciplines/areas.</p>
2		Geography- GEOH (871)		
3		Economics- ECHH (872)		

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre of Social Medicine and Community Health (CSMCH)	Social Sciences in Health- CSMH (873)	Social Sciences and other disciplines allied to public health; Masters degree/ M.Phil. in Social Sciences, Humanities Management, Sciences, Technology and allied subjects/fields with at least 55% marks from a recognized University/Institutions (or equivalent grade B in UGC 7-point scale or equivalent grade in a point scale wherever grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.
2		Public Health - PUBH (874)	MD/MPH/M.Sc. (Nursing)/M.Phil degree with minimum 55% marks from a recognized University/Institution (or equivalent grade B in UGC 7-point scale or equivalent grade in a point scale wherever grading system is followed), for candidates with, Bachelors level degree with minimum duration of four years in clinical sciences viz. MBBS, AYUSH, BDS, BAMS, BUMS, BSMS, BHMS, BPT, BOT, B.Sc. (Nursing), BVSc or a professional degree in Allied Subjects/fields by the corresponding statutory regulatory body, with Minimum of 55% marks from a recognized University/Institution (or equivalent grade B in UGC 7-point scale or equivalent grade in a point scale wherever grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for the Study of Social Systems (CSSS)	Social Systems - SOCH (875)	Only those candidates shall be considered for admission to the Ph. D. Programme who have — Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Zakir Husain Centre for Education Studies (ZHCES)	Educational Studies-EDUH (876)	Only those candidates shall be considered for admission to the Ph. D. Programme who have — Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Studies in Science Policy (CSSP)	Studies in Science Policy- SSPH (877)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/B.E./B.Tech./B. Pharm. with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil./M. Pharm. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E./B.Tech./B. Pharm.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Philosophy (CP)	Philosophy- SPHH (878)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E./B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Women Studies (CWS)	Women Studies- WSPH (879)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E./B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for the Study of Social Exclusion and Inclusive Policy	Social Exclusion and Inclusive Policy – SEIH (880)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Desirable
1	Centre for Media Studies (CMS)	Media Studies-CMSH (881)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>	May have exposure in Social Sciences/Humanities/Media and Cultural Studies.

5. SCHOOL OF ENVIRONMENTAL SCIENCES

Environmental Sciences as a discipline was incepted at JNU in 1974 as a bold step to clear precept the frame of boundaries across disciplines— Biology, Chemistry, Geology, Mathematics, Physics among others. The school is truly multidisciplinary in its teaching, research and outreach activities. These ensure interaction between fundamental and applied sciences, and expect evaluation of meaningful, viable and sound academic curriculum where Environmental Science remains a central focus. The outcomes of the research are value addition to existing knowledge and creation of newer information which helps in affecting and shaping policy interventions for environmental conservation and management. The research work ranges from environmental pollution, climate change issues, ecological and geological processes to science and technology based interventions. The intake of students, research scholars and faculty members ensures diverse interests and multi-disciplinary built-up in the school with the dynamic perspectives to find sustainable solutions.

The school offers Ph.D. and M.Sc. programmes. The School is distinguished for recipient of UGC sponsored special assistance programme (SAP)/DSA/ DRS programmes, FIST sponsored by the DST and the ENVIS centre sponsored by the Ministry of Environment and Forests, Government of India. Academic activities of the faculty members have been recognized both nationally and internationally, and several of them are recipients of various research projects, funded by governmental and intergovernmental agencies such as DST, ISRO, DBT, MoES, UGC, ICMR, CSIR, MoEF&CC, Global Environment Facility, NIC, DRDO, MoWR and others. Faculty members are also part of various committees constituted by the Central and State Governments. The School has set-up a Central Instrumental Facility (CIF) housing many state of art of analytical instruments including CHNSO Analyser, Gas

Chromatograph, Atomic Absorption Spectroscope, UV-Vis Spectrophotometer, Scintillation Counter, AKTA system, XRD, Real Time PCR, Microwave Digestion, AXIOSKOP AXIOVERT microscope and Fluorescent Microscope, Flow Cytometer, OC/EC analyzer, Ion exchange Chromatograph, Ultra-centrifuge, Spectroradiometer, Atomic absorption spectroscope, WD – XRF, High-end Performance Computing (HPC) facility etc. Other than that a well equipped M.Sc. laboratory with some essential instrumental facilities, an in-house library and computational laboratory with internet facilities are provided to the students to strengthen their scientific awareness with global challenges.

PROGRAMMES OF STUDY

The activities of the School are inter-disciplinary. The School endeavours to study the problem of environment in an integrated manner using the principles of Mathematics, Physics, Chemistry, Geology and Biology.

Ph.D.

Students admitted for Ph.D. are required to go through one year mandatory course works and secure qualifying CGPA for further continuation for the PhD thesis.

The candidates may give their preference to any two research areas of the following four research areas at the time of applying. The candidature of those candidates applying for more than two research areas of the School is likely to be rejected. Therefore, candidates are advised in their own interest not to apply for more than two research areas.

Based on performance in entrance exam, candidates will be called for interview. At the time of interview, the candidates will have to give their preference for research specializations within the area they have been called for. The research specializations of each faculty are described in the JNU web site.

Research Area-I: Application of applied Physics and Mathematics in the disciplines to study the Environmental Problems, Air Pollution, Aerosol Studies, Noise, Meteorology and Climatology, Science of Climate change and Regional Climate Modeling, Paleoclimate, Snow and Glacier Physics.

Research Area-II: Application of Geology Geochemistry and Biogeochemistry to problems of surface earth processes, water bodies including ground water, glaciers, Coastal Aquatic Systems, Estuaries and Mangroves, soils/ sediments, Mineral Deposits and Mining Pollution. Remote sensing applications in Geosciences. Extra terrestrial Remote sensing application in Lunar and Martian observation by using Chandrayan and Mangalyan (MOM), Climate Change impact on glacier & water resources.

Research Area-III: Application of Chemistry and Geochemistry in monitoring and management of Air, Water and Soil Pollution, Biogeochemical Cycling, Weathering and Paleoclimate studies.

Research Area-IV: Ecosystem Dynamics, Cellular and Molecular Biology, Biochemistry, Biophysics and Biotechnology in Environmental Science, Molecular Microbial Ecology, Microbial Interactions and Behavior, Rhizosphere Genomics, Sustainable Agriculture, Bioremediation and Bioconversion of xenobiotics, Environmental Cancer Biology, Nanobiotechnology, Environmental Nanotechnology, Environmental Toxicology, Antimicrobial Agent Discovery & Development, Bioaerosols, Environmental Pathogen and Remote Sensing & GIS for LULC/ecosystem analysis & modelling.

For more details about the School, visit the JNU website : <https://www.jnu.ac.in/ses>

ELIGIBILITY CRITERIA:

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Eligibility
1	School of Environmental Sciences (SES)	Research Area I-ONEH (885)	Only those candidates shall be considered for admission to the Ph.D. programme who have: M.Sc. in any branch of basic or applied sciences or BE/B.Tech/MBBS with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained two years M.Phil. in any branch of basic or applied sciences with 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. in any branch of basic or applied sciences with at least 55% marks with additional one year research experience of a recognized University/Institutional, and one publication and 55% marks or equivalent in M.Sc. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.
2		Research Area II-TWOH (886)	
3		Research Area III-THRH (887)	
4		Research Area IV-FORH (888)	

6. SCHOOL OF COMPUTER & SYSTEMS SCIENCES

The School of Computer and Systems Sciences was established in 1975. It is among the first few institutions in the country to offer degree in Computer Science & Technology. The School offers Masters and Research programs leading to degrees in MCA, M.Tech in Computer Science and Technology, M.Tech in Data Science, and Ph.D. in the areas of Computer and Systems Sciences. The School attracts the very best and most talented students from all over the country. The large number of applicants for admissions to the research programme of the School clearly indicates the prestige, reputation and popularity of the programmes offered by the school. This trend is also prevalent in the case of admission seekers from neighboring and other foreign countries. Besides the teaching and research programmes of the School, the School has been engaging methods and ways to stimulate research further and enhance the learning skills of the students by organizing weekly research seminars and National Seminar-Cum-Technical Festival for students from across India. The School has the following research areas:

Big Data, Cloud Computing, Computer Graphics, Computer Network, Computer Vision, Databases, Data Mining, Data Warehousing, Embedded Systems, Image Processing, Knowledge Engineering, Artificial Intelligence, Machine Learning, MEMS, Mobile Networks, Modelling and Simulation, Natural Language Processing, Network Security, Optimization Theory, Parallel and Distributed Systems, Pattern Recognition, Programming Languages, Software Engineering, VLSI, Web Mining and Wireless Network.

PROGRAMMES OF STUDY

Ph.D. Programme

The School will have two separate streams namely "Computer Science" stream and "Microsystems" stream in the JNU entrance examination for the admissions to the PhD programme. An applicant for the PhD programme should clearly mention only one stream in the application form. The candidature of those applying for both the streams is likely to be rejected. Therefore, the applicants are advised in their own interest not to apply for both the streams. Admission is offered to candidates based on their performance in the Computer Based Test (CBT) and the viva-voce examination, as per University rules. In the entrance examination, besides the common part, the applicants must answer questions only for the part meant for their choice of stream. On the basis of the candidates' performance in the entrance examination and as per University rules, the candidates would be called for the viva-voce examination. Separate viva-voce examination would be conducted for "Computer Science" stream and "Microsystems" stream. Admission to the PhD Programme will be based on the merit in entrance and viva-voce examination.

For more details about the School, visit the JNU website : <https://www.jnu.ac.in/scss>

ELIGIBILITY CRITERIA:

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Eligibility
1	School of Computer & Systems Sciences (SC&SS)	(i) Computer Sciences - SCSH (890)	<p>The candidates interested in research in Cloud Computing, Computer Graphics, Computer Network, Computer Vision, Databases, Data Mining, Data Warehousing, Embedded Systems, Image Processing, Knowledge Engineering, Artificial Intelligence, Machine Learning, MEMS, Mobile Networks, Modelling and Simulation, Natural Language Processing, Network Security, Optimization Theory, Parallel and Distributed Systems, Pattern Recognition, Programming Languages, Software Engineering, VLSI, Web Mining and Wireless Network will be considered for Admission to Ph.D. programme this year.</p> <p>Only those candidates shall be considered for admission to the Ph.D. programme who have</p> <p>Master's Degree in Computer Science or Mathematics or Statistics or Operational Research or in any branch of Science or Master of Application (MCA) with 55% marks or equivalent Grade 'B' in UGC 7- point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p style="text-align: center;">OR</p> <p>Master's Degree in Electronics or Electrical & Electronics Engineering or Electronics & Communication Engineering or related areas with 55% marks or equivalent Grade 'B' in UGC 7- point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p style="text-align: center;">OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with Dissertation/Seminar/Viva), and with 55% marks or equivalent Master's degree;</p> <p style="text-align: center;">OR</p> <p>One year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institute, and one publication and with 55% marks or equivalent in Master's degree;</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>
		(ii) Microsystems – MISH (915)	

7. SCHOOL OF PHYSICAL SCIENCES

The School of Physical Sciences (SPS) is one of the leading departments in India in terms of research and teaching in Physical Sciences. Over the years, the School has made significant contributions to traditional as well as interdisciplinary areas spanning Physics, Chemistry and Mathematics. The School has well-equipped laboratories for Physics and Chemistry and state of the art computing facilities. It also has a library with an excellent collection of books on Mathematics, Physics and Chemistry.

The research emphasis of the Physics group has been on topics in Condensed Matter Physics, Chemical Physics, Disordered Systems, High Energy Physics, Mathematical Physics, Laser Physics, Neutrino Physics, Non-equilibrium Statistical Mechanics, Non-linear Dynamics, Statistical Biophysics, Quantum Chaos and String Theory. Active research is also being carried out in the areas of Complex Fluids, Superconductivity, Magnetism, Semiconductors, Spintronic Materials, Thermoelectrics, Photovoltaics, Plasma Astrophysics, Quantum Optics, Quantum Information Science, Mesoscopic Systems, Polymers, Bio and Nano Materials, Thin Films, Quantum Dots, Strongly Correlated and Frustrated systems, Topological Materials, High entropy alloys, Magnetocaloric Materials and Materials for Nuclear energy applications, Space Plasmas and Dusty Plasmas.

The Chemistry group is active in the areas of Synthetic Organic Chemistry, Inorganic Chemistry, Physical Chemistry Especially Supramolecular Chemistry, Glycochemistry, Crystal Engineering, Ultrafast Spectroscopy, Materials Chemistry, Biophysical Chemistry, Bio-inorganic, Bio-organic Chemistry, Medicinal Chemistry, Peptide Chemistry and Structure Based Drug Design.

The Mathematics group has been working in Number Theory (Algebraic and Analytic), Elliptic Curves, Ergodic Theory and Dynamical Systems, Probabilities on Groups and Operator Algebras.

The research and teaching contributions of SPS have been acknowledged in various ways. Many of our students have gone on to become academicians in leading institutions and laboratories. Many of the faculty members are frequent speakers at national and international conferences. The faculty and students regularly publish research articles in top international journals and their publications have received extensive citations in the scientific literature. Some faculty members have received prestigious awards and been elected fellows of reputed scientific academies. In recognition of its excellence in teaching and research, SPS has been continuously supported by the UGC since 1994 through various schemes such as DRS-COSIST and DSA. Apart from the UGC support, SPS has also been receiving major funding from the DST under the FIST programme. In addition, SPS faculty members have received considerable individual support through research projects from SERB, CSIR, DST, DBT, UGC, NBHM, DAE, ISRO etc.

PROGRAMMES OF STUDY

Ph.D. programmes in Physical Sciences, Chemical Sciences and Mathematics.

Candidates admitted to a Ph.D. programme would be required to successfully go through prescribed course work.

ADMISSION TO PROGRAMMES OF STUDY

For admissions, SPS is offering degree Programmes mentioned above. Admission to all these programmes is through Entrance Examination. In addition, students who have UGC/CSIR/NBHM Junior Research Fellowship (JRF) may be invited directly for the viva/interview for admission to Ph.D. Programmes in the relevant subjects.

For more details about the School, visit the JNU website: <https://www.jnu.ac.in/sps>

ELIGIBILITY CRITERIA:

Ph.D. in Chemical Sciences/Physical Sciences/Mathematical Sciences

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Eligibility
1	School of Physical Sciences (SPS)	Mathematical Sciences – MATH (897)	Candidates shall be considered for admission to the Ph.D. programme on the following basis: Candidates who have obtained M.Sc. degree (two years programme or five years Integrated programme) from a recognized University/Institution in Mathematics/Physics/Chemistry (for the corresponding subject) with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).
2		Physical Sciences – PHYH (898)	OR
3		Chemical Sciences – CHEH (899)	Obtained two years M.Phil. Degree for the corresponding subject with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with the corresponding subject with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in M.Sc. Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the latest UGC Regulation.

8. SCHOOL OF COMPUTATIONAL AND INTEGRATIVE SCIENCES

The School of Computational and Integrative Sciences, Jawaharlal Nehru University, presently houses a Bioinformatics Centre, Master's program in Computational and Integrative Sciences and a Post Graduate Diploma in Biological Big Data Analytics, all generously funded by the Department of Biotechnology, Govt. of India. Additionally, SCIS initiated the Centre for Complex Systems, introduced and supported in the XII Plan by the UGC. The major objective of the School is to develop and apply computational methods in different disciplines, particularly biological data. This mission is reflected in the diverse faculty profile of the school which comprises researchers from fields as varied as Genomics, Computational Biology, Plant Biology, Complex Systems, Theoretical and Computational Chemistry, Petri nets and Graph Theory, Mathematical Biology, Bio- & Nano- molecular Interactions, Biosensors, Statistical Data Analysis and Modeling, Computational Radio Frequency and Microwave, Antenna applications for Biomedical application.

PROGRAMMES OF STUDY

Teaching and research programs in Computational and Systems Biology involve research, development, and application of computational tools and approaches for expanding the use of biological, agricultural, medical, behavioral or health data, including those to acquire, store, organize, archive, analyze, or visualize such data. In addition, research programs involve the development and application of data analytical and theoretical methods, mathematical modeling and computational simulation techniques to the study of biological, behavioral, and social systems. The School has initiated a program in Complex Systems which will study the behavior of mathematical, physical, living and social systems, identify patterns that underlie these interrelated systems, and examine properties such as emergence, evolution, network, structure and dynamics of these systems in a competitive environment.

(a) Areas of research:

Some of the frontier areas of research conducted at the School are:

Computational Genomics and Next Generation Sequencing
 Applied data analytics and machine learning
 Plant Biology: Genomics, Epigenomics and Genome Editing
 Single Cell Genomics, Multi-omics and Systems Biology
 Cheminformatics and Drug Discovery
 Genome-wide Application of Information Theory and Pattern Recognition Methods
 DNA-Protein Interactions
 Nucleosome Dynamics
 Genome Organisation and Function
 Biomechanics and Mathematical Modeling of the biological systems
 Stochastic and Nonlinear Dynamics Applied to Biological Systems
 Monte Carlo Simulation Techniques to Explore the Energy Landscape of Water Clusters and Biomolecules
 Structure, function, dynamics of calcium-binding proteins
 Development of a Bacterial Cell Model: diffusion and hydrodynamics.
 Effect of Molecular Crowding on Biomolecular Systems.
 Mathematical biology, Graph Theory and Petri-Nets optimization techniques.
 Application of Network Theory in Social and Financial Systems.
 Econophysics and Sociophysics- Application of Physics to Model Socio-Economic Systems.
 Wireless communication and Applications in Biology, including wearable/implantable devices as antennas/sensors
 High Performance Computing and Cyber infrastructure
 Biomolecular Interactions, nano- and bio-sensor for clinical, food and environment applications.

(b) Academic Programmes:

Ph.D.degree in Computational and Integrative Sciences. The School encourages intake from multiple disciplines into all its programs of study, which are grouped with independently specified intake requirements as (a) Physical Sciences (Track 1)(b) Biological Sciences (Track 2) and (c) Mathematical and Computer Sciences (Track 3), to provide an optimal peer-group of analytical, domain and computational skills within each program. Admitted students can pursue research on any topics broadly listed under (a).

The teaching and research programs are supported by good computational and communication infrastructure. Each student is provided with a personal seat with a desktop/workstation, and the School manages a centralized facility for high-performance computers, consisting of computer clusters with multiprocessor nodes, large-memory nodes and GPUs to facilitate specialized research. The school takes pride in being among the country's best institutions in imparting high- value employability-related skills to its students such as in genomics data analytics, molecular simulations, data science and financial modeling and simulation.

Research areas are broadly listed under section (a).

(c) ADMISSION TO PROGRAMMES OF STUDY

For admissions, SCIS offer degree programs: PhD. Admission to PhD programs is through JNU Entrance Examination. In addition, students who have cleared the National Eligibility Test & hold a Junior Research Fellowship (JRF) may be invited directly for the viva/interview for admission to Ph.D. Courses. Entrance examination will consist of a choice from two or three tracks for Ph.D. programme based on the academic background of applicants.

Admission of Ph.D. is as follows:-

Track 1: Physical Sciences: Physics, Chemistry and related disciplines.

Track 2: Biological Sciences: Life Sciences, Biotechnology and related disciplines with an aptitude in informatics; Bioinformatics and Computational Biology.

Track 3: Mathematical and Computer Sciences: Mathematics/Statistics, Computer Sciences including Information Technology with emphasis on data analytics.

The use of the word "Track" in this document is solely for the purpose of grouping disciplines for the purpose of Entrance examination and admission to various programs.

Note: Candidates applying for Ph.D. programme are allowed to exercise only one track for each programme

For more details about the School, visit the JNU website : <https://www.jnu.ac.in/scis>

ELIGIBILITY CRITERIA:

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Eligibility
1	School of Computational and Integrative Sciences (SC&IS)	Computational Biology and Bioinformatics - Track 1 – TROH (903)	M.Sc/B.E./B.Tech in Physics/ Chemistry/ Mathematics/Computer Science/ Statistics/ Operations research/Life Sciences/ Biotechnology/Bioinformatics/engineering and related disciplines with minimum of 55% in the qualifying degree or equivalent Grade ‘B’ in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR
2		Computational Biology and Bioinformatics - Track 2 – TRTH (909)	Candidates with Advanced Diploma (after M.Sc. degree with at least 55% marks) in Bioinformatics are also eligible. OR
3		Computational Biology and Bioinformatics - Track 3 – TRDH (910)	Obtained two years M.Phil. degree or equivalent with at least 55% marks in the related field like science, engineering, medical and pharmaceutical science from a recognized University/Institution (with dissertation/seminar/Viva) or one year M.Phil. degree with 55% marks in the related field like science, engineering, medical and pharmaceutical science with additional one year research experience of a recognized University/Institution, and one publication and with minimum of 55% in the M.Sc./B.E./B.Tech in relevant field or equivalent Grade ‘B’ in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016

9. SCHOOL OF ARTS AND AESTHETICS

The School of Arts and Aesthetics offers post-graduate degree courses in the theoretical and critical study of cinema, and the visual and performing arts. It is one of the few places in India where these disciplines are offered in one integrated programme at the Masters level.

The study of the arts in recent years has been enriched by methods and insights from many fields, such as sociology, anthropology, linguistics, cultural studies, political science, economic history, ecology, semiotics and feminist studies. The School's outlook has been formulated in response to new ways of thinking about culture using a wide array of critical and theoretical approaches. During the course of their studies, students are introduced to a range of research methods that combine archival, ethnographic, theoretical and cultural approaches and are encouraged to create theory-practice interface. The faculty also encourages students to visit museums, exhibitions, and monuments and to attend festivals of theatre, film, dance and music. The school frequently hosts interactive sessions with eminent scholars and practitioners from within the country as well as from overseas.

Please bear in mind that SAA does not impart a practice based education in the arts. Our pedagogy is a theoretical and critical one that examines the histories, philosophies and critiques of the mentioned areas.

Resource Centre: Over the years the School has also built up a valuable and expanding library and archive of photographs, audio and video recordings. The use of multi media in teaching helps students maintain live contact with performance, visual art and film. Students are encouraged to undertake field trips, learn documentation methods, to curate exhibitions in the art gallery, to organize film festivals on specific themes and observe performance practices.

Disciplinary Streams:

Cinema Studies courses position the moving image as a force inhabiting a multi-media environment that includes film, television, video, and digital cultures. While film, as a powerful experience of 20th century modernity, continues to be an important scholarly focus, we also see it as a gateway to a broader field of the moving image complex. Our courses are structured to offer students exposure to a wide range of issues such as the sensory experience of moving image technologies; the stylistic and aesthetic dimension of diverse media forms; the political and cultural evaluation of audio-visual representations; and the infrastructures of media production, circulation, and exhibition. Students are encouraged to think conceptually and critically about global media cultures along with a special focus on India.

Theatre and Performance Studies offers a diverse spectrum of courses covering the history, theory and practice of theatre, dance, music and performance, both within India and across the world. Introductory courses are offered alongside a wide range of optional courses in music and dance. Covering a vast timeframe from 'living traditions' of rural performances in India and bhakti to the cutting-edge developments in political theatre, gender, globalization, and performance art, the Department is committed to studying theatre and performance both within established traditions of the stage, as well as in relation to the immediacies and contradictions of public culture at national and global levels.

Visual Studies: The visual studies courses address "high" art forms as well as the larger visual field of popular culture and visual practices. The majority of visual studies courses encourage a critical engagement with aspects of Indian visual culture (including shastric and aesthetic theories of Indian art, ancient sculpture, medieval temple architecture, Mughal and Rajput painting, 19th and 20th century popular culture, photography, modern and contemporary art in India and elsewhere) in the light of cutting-edge research and theoretical developments in art history, visual studies, history, literary theory, philosophy, aesthetics, ecology and sociology. Theoretically-oriented and cross-cultural courses take up issues such as the relationship between methods, materials and meanings in art, narrative strategies in art, and the history and politics of art institutions, particularly museums, in the creation of canons of art.

PROGRAMMES OF STUDY

The School runs three Ph.D. programmes in Cinema Studies, Theatre and Performance Studies and Visual Studies.

PhD Programme: For details kindly see the eligibility table.

For more details about the School, visit the JNU website : <https://www.jnu.ac.in/saa>

ELIGIBILITY CRITERIA:

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Eligibility
1	School of Arts & Aesthetics (SA&A)	Visual Studies – VSAH (900)	Only those candidates shall be considered for admission to the Ph. D. Programme who have — Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).
2		Theatre & Performance Studies- TPSH (901)	
3		Cinema Studies- CNSH (902)	OR Obtained two years M.Phil. degree with 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) or one year M.Phil. degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC regulations 2016.

10. SCHOOL OF BIOTECHNOLOGY

The School of Biotechnology was one of the first six centres established under the aegis of Department of Biotechnology (DBT), Govt. of India for carrying out Postgraduate teaching and research in areas related to Biotechnology. Initially established as a Special Centre for Biotechnology in 1985, it was upgraded to the level of a School in the year 2006.

Over the years the Biotechnology programme at JNU has established itself as a leading academic programme both from the teaching and research point of view. The faculty of the school is internationally recognized for basic and applied aspects of biotechnology research.

PROGRAMMES OF STUDY

(i) Ph.D.

The competitive and vibrant Ph.D. programme in basic and applied biotechnology embarks on creating a strong academic research foundation in the following cutting-edge areas of Biotechnology:

- Molecular & Cell Biology
- Cancer Biology
- Infectious Disease Biology
- Biology of Rare Genetic Disorders
- Protein Science
- Structural Biology
- Chemical Biology & Bioconjugate Chemistry
- Bioinformatics & Systems Biology
- Immunology & Vaccine Development
- Nanobiotechnology & Microfluidics
- Plant Biotechnology
- Environmental Biotechnology & Metagenomics:
Applications of Metagenomic Studies - Bacterial Biofuel & Plastic Biodegradation
- Cilia Biology & Optogenetics
- Functional Genomics of Human Complex Diseases
- Bioprocess Engineering
- Synthetic Biology
- Molecular Virology
- genome science, technology, engineering
- integrated genome analysis and use of artificial intelligence tools in biology

The School of Biotechnology is well endowed with State of the art facilities for cutting edge research in Biotechnology. Some of the major equipments/facilities in the school are as follows:

- Central Instrumentation Facility
- Recombinant Product Development Facility
- Spectroscopic Facility
- Microcalorimetric Facility
- Microscopic Facility
- Protein production and purification Facility
- Biosafety Level 2 Facility
- Biosafety Level 3 Facility
- Plant Tissue Culture Facility

Central Instruments Facility

The School has a Central Instruments Facility (CIF) equipped with all the basic and advanced equipments/ instruments required for modern day research in biotechnology. The facility is open round the clock for both the students and the faculty.

Recombinant Product Development Facility (RPDF)

Under the FIST support from the Department of Science and Technology (DST), the School has created a Recombinant Product Development Facility. The facility includes all necessary up stream and downstream equipments, and quality control and testing equipments required for the recombinant product development.

Spectroscopic facility:

The spectroscopic facility includes a number of highly sensitive UV-Visible spectrophotometers, Fluorescence spectrometers, Circular Dichroism spectrometer with stopped flow attachment, FT-IR spectrometer and Nano drop Spectrophotometer etc.

Microcalorimetric facility:

This facility includes Microcal differential scanning calorimetric and isothermal titration calorimetric set up for studying bimolecular stability, folding and interactions.

Microscopic facility:

This includes Simple microscopes, Fluorescent microscopes, Laser Scanning Confocal microscope, Phase contrast microscopes.

Protein Production and Purification Facility:

This facility includes refrigerated incubator shakers, Bacterial and Mammalian cell bioreactors with online FTIR analysis, AKTA-Prime, AKTA-Explorer FPLC for protein purification, Shimadzu HPLC.

Flow Cytometer and Sorter Facility:

The flow cytometer facility includes BD FACSaria™ Fusion machine with four laser cell analyser and sorter. The school also has Attune NxT Flow Cytometer facility.

Other equipments:

Other specialized analytical facilities that are available in various labs and the Central facility include Real Time PCR, ELISA readers, Elispot Reader, Fluorescence Activated Cell Sorter, Bioreactors. Denaturing Gradient Gel Electrophoresis etc. In addition to the above, the University has an Advanced Instrumentation Facility. Details about the facility can be looked at: <http://www.jnu.ac.in/AIRF>

Strong emphasis is placed on the interdisciplinary nature of Biotechnology; Thus, students coming from both the Physical and Biological Sciences streams are welcome.

For more details about the School, visit the JNU website : <http://www.jnu.ac.in/sbt>

ELIGIBILITY CRITERIA:**Ph.D.**

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Eligibility
1	School of Biotechnology	Biotechnology – SBTH (904)	<p>M.Sc. in Biotechnology, Biochemical Engineering, Biochemistry, Chemistry, Physics, Mathematics or any branch of Physical or Biological or Engineering Sciences or B.Tech/B.E. (Biotechnology/Bioengineering/Allied Areas)/MBBS with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>M.Sc./B.Tech/B.E./MBBS with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in M.Sc./B.E./B.Tech./MBBS</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016</p>

11. SCHOOL OF SANSKRIT AND INDIC STUDIES

The School of Sanskrit and Indic Studies, formerly Special Centre for Sanskrit Studies established in 2000, was upgraded by the 144th Academic Council meeting vide the Notification dated 18/12/2017. The new School broadens its domain of study to undertake research and teaching in Sanskrit studies directed towards relating Indian knowledge systems both to contemporary Indian reality and contemporary Western thought. The initial focus is on philosophy, grammar, as reflected in Sanskrit, Pali and Prakrit languages and Language Technology, literary theory, literature, social and scientific thought.

PROGRAMMES OF STUDY

Ph.D. programme: Research and teaching is undertaken in areas of Vedic and Agamic/Tantric literature and thought, Indian philosophical systems, Sanskrit poetics and poetry, Sanskrit grammar and grammatical theory, Pali and Buddhist Studies, Mahayana

Buddhism, modes of disputation and interpretation of text, Sanskrit linguistics including Computational Linguistics etc. Comparative research is also encouraged.

For more details about the School, visit the JNU website : <https://www.jnu.ac.in/ssis>

ELIGIBILITY CRITERIA:

Ph.D.

Sl. No.	Name of School	Sub. Code & Code Number	Eligibility
1	School of Sanskrit and Indic Studies (SSIS)	Sanskrit Studies – SANH (906)	<p>Master's degree or equivalent in Sanskrit or in any allied subject with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's degree.</p> <p>Knowledge of Sanskrit is desirable.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

12. SCHOOL OF ENGINEERING

The School of Engineering, which was established in 2018, is one of the youngest school in the Jawaharlal Nehru University. The school offers a five year dual degree programme with B. Tech. in an engineering discipline combined with a master's programme (M.Tech./M.S.). A student can have master's specialization in Social science/Management/Humanities/Science/Technology domains based upon their CGPA and they can also take four year B. Tech as an exit option under NEP 2020. The five year dual degree is one of the very few programmes in the country where the student would acquire the necessary foundational skills through the designed core/elective/optional courses in the areas of technology, basic science, humanities and social science. This unique dual degree programme will not only allow the students to develop an acquaintance with modern technology, but will also make the students more sensitive towards their socio-economic and environmental responsibilities.

The School of Engineering also offers a Ph.D. program in Computer Science & Engineering, Electronics & Communication Engineering and Mechanical Engineering, and aspires to be at the forefront in offering interdisciplinary research - a goal in JNU's charter. The research interests of our notable faculty cover various facets of modern Computer Science & Engineering, Electronics & Communication Engineering and Mechanical Engineering.

Programmes of Study

Doctor of Philosophy (Ph.D.) program

- (a) **Ph.D. in Computer Science and Engineering (CSE)**
Research Areas: Computer Vision, Computer Networks, Cyber Security, Wireless Networks, IOT, Data Science, Artificial Intelligence, Social Networks.
- (b) **Ph. D. in Electronics and Communication Engineering (ECE)**
Research Area: Microwave, RF, Electro-magnetic, Signal Processing, Time Series Analysis, Network Science, Meta Materials.
- (c) **Ph.D. in Mechanical Engineering**
Research Areas: Welding Technology, Material Science.

Mode of Admission:

1. Through JRF
2. GATE mode which would be as per AICTE doctoral fellowship (ADF) guidelines.

For more details about the School, visit the JNU website : <https://www.jnu.ac.in/se>

ELIGIBILITY CRITERIA:

Ph.D.

Eligibility criteria for JRF candidates

Sl. No.	Name of School	Sub. Code & Code Number	Eligibility
1	School of Engineering	Computer Science and Engineering – CSEH (912)	<p>Only those candidates shall be considered for admission to the Ph.D. Programme who have</p> <p>Master's degree in the areas related to Electronics, Electrical, Computer Science, Information Technology with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p style="text-align: center;">OR</p> <p>Obtained M.Tech./M.E. degree in the area related to Electronics, Electrical, Computer Science, Information Technology, Software Engineering, Materials Engineering, Mechanical Engineering, Aerospace Engineering, Industrial Engineering, Manufacturing/Production Engineering with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed) from a recognised university/institute.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>
		Electronics and Communication Engineering - ECEH (913)	
		Mechanical Engineering – MEEH (918)	

Ph.D.

Eligibility criteria for GATE candidates (as per current ADF guidelines)

Sl. No.	Name of School	Sub. Code & Code Number	Eligibility
	School of Engineering	Computer Science and Engineering – CSEH (912)	<p>a) Obtained M.Tech./M.E. degree in the area related to Electronics, Electrical, Computer Science, Information Technology, Software Engineering.</p> <p>b) The General/EWS/OBC candidate must have secured minimum cumulative grade point average (CGPA) of 7.5 on the scale of 10 (or minimum 69.5 % marks) or equivalent at both B.E./B.Tech. and M.E./M.Tech. in the areas mentioned in the point (a) above. For SC/ST/Physically Challenged candidates CGPA requirement will be 7.0 on the scale of 10 (64.5%) or equivalent.</p> <p>c) The candidate should have qualified GATE during the last 5 years.</p> <p>d) The candidate should be less than 30 years of age as on the date of admission in respective university. However, age relaxation of 5 years would be applicable to candidates belonging to SC/ST, women and physically challenged category.</p>
		Electronics and Communication Engineering - ECEH (913)	

13. ATAL BIHARI VAJPAYEE SCHOOL OF MANAGEMENT AND ENTREPRENEURSHIP (ABVSME)

The Jawaharlal Nehru University's Atal Bihari Vajpayee School of Management and Entrepreneurship (ABVSME) will offer admission in the following academic programmes in the session 2022-23.

- Doctor of Philosophy (Ph.D.) in different management sub-disciplines

A. Doctor of Philosophy (Ph.D.) - SMEH (914)

For Indian Citizens:

Eligibility: Master's Degree in Management or in a relevant discipline (such as Economics, Commerce, Statistics, Psychology, Operations Research and related areas) with at least 55% marks.

Mode of admission: (i) through JRF (ii) JNU Entrance Examination.

The process for admission to Ph.D. programme in management will be the same as per other Ph.D. programme offered by the University.

For Foreign Nationals:

GMAT Score (minimum 650) and Master's Degree in Management or in a relevant discipline (such as Economics, Commerce, Statistics, Psychology, Operations Research and related areas).

Ph.D. Courses:

Details of the courses are available on ABVSME website: <https://jnu.ac.in/abvsme>

14. SPECIAL CENTRE FOR THE STUDY OF NORTH EAST INDIA

Special Centre for the Study of North East India (SCSNEI) at JNU was established in the year 2018. Earlier it was functioning as a university level Programme under the name, North East India Studies Programme.

SCSNEI is conceived with a purpose to build a corpus of academic works on North East India. It aims at holistic understanding of the region by bringing together different epistemic perspectives into a platform with strong commitment to multi-disciplinary research. SCSNEI provides a common platform for researchers in the areas of humanities, social sciences, natural sciences, and other allied disciplines, whose works are directly or indirectly linked to the studies on North East India and its neighbouring countries.

At present, SCSNEI focuses on areas of study, such as, social change, religion and statecraft, empowerment politics, regional economic growth, livelihood studies, border trade and state policies, global capital and institutions, conflict, peace and security studies, borderland studies, intercultural discourses, **history, literature**, ancient Indian culture and archaeology, aesthetics and performance studies, traditional knowledge, health, biodiversity, folk medicine, etc. Students and researchers are encouraged not only to conduct in-depth research but also simultaneously develop social commitment to judiciously apply the freshly acquired knowledge.

Programme of Study

Admission to Ph.D. Programme

Candidates seeking admission to the PhD Programme are required to submit a comprehensive research proposal indicating the research problem, nature and scope, theoretical and conceptual understanding, methodology and review of literature of the work the candidate proposes to undertake. They are also expected to have initial research experience and sound knowledge on the region and the neighbouring countries (with focus on Act East Policy). The essential qualifications are provided in the table below:

For more details about the Special Centre, visit the JNU website : <https://www.jnu.ac.in/scsnei>

ELIGIBILITY CRITERIA:

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Special Centre for the Study of North East India	North East India Studies-NESH (882)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

15. SPECIAL CENTRE FOR E-LEARNING (SCEL)

About SCEL:

The newly created 'Special Centre for E-Learning (SCEL)' at Jawaharlal Nehru University aims to develop and offer online courses with an aim to bring its expertise and high quality education system to those who miss out for the university's competitive entrance examination, and because of its limited on-campus space. The online courses are planned to be offered in large numbers and multiple disciplines, ranging from Certificate to Undergraduate and Post-graduate degrees, where interested students from even the remote regions of the country will get an opportunity to virtually attend the classes taught by the best faculty; access JNU's vast intellectual resources; participate in the discussion forums; take test and earn a JNU degree.

In order to fulfill the laid down conditions and the quality parameters specified under the University Grants Commission (Online Courses or Programmes) Regulations, 2018, SCEL plans to develop the infrastructure, appoint academic and administrative staffs, maintain and administer the Centralised Data Base of all the online Courses or Programmes, work for effective coordination among the faculty members offering online courses, admission branch, evaluation branch and Communication and Information Services at JNU.

16. SPECIAL CENTRE FOR MOLECULAR MEDICINE

Molecular medicine is a promising area of biomedical sciences that aims to understand the molecular determinants of human health and diseases and apply this knowledge for the prevention, diagnosis and treatment of the diseases. The Special Centre for Molecular Medicine (SCMM), established in 1999 at JNU, has pioneered research and education in India and is imparting Master (Post-Graduate) and Ph.D. (Doctoral) level training in various fields of molecular medicine. The centre aims to accomplish its goal through offering innovative and collaborative basic and clinical research programmes. Ever since its inception, the Centre has undertaken many collaborative research activities with reputed national and international medical research institutions.

The objective of SCMM is to foster teaching and research activities in the study of human diseases using advanced tools of biochemistry and molecular and cell biology. SCMM conducts academic programmes for the training of young scientists (both clinical and non-clinical) who are keen to pursue a career in basic medical research. The academic programmes have been designed for non-clinical biologists/chemists, with sufficient knowledge to deal with medical problems, to enable them to develop and deliver product/processes to the society; and for clinicians with a basic clinical degree, who are keen to understand modern biology and chemistry at the molecular level, to enable them to apply this knowledge for drug development. For successful implementation of these objectives, SCMM offer Ph.D. programmes of study.

The faculty members of the centre are pursuing teaching & research activities in the following thrust areas of molecular medicine in which the Centre offers the basic and clinical sciences students opportunities to pursue Ph.D. degree:

1. Metabolic disorders such as cardiovascular diseases, role of iron in insulin resistance related pathogenesis, neuro degenerative disorders like Parkinson and Alzheimer diseases, and endocrine-related cancers.
2. Nuclear receptors in health and diseases: to study underlying molecular mechanisms of nuclear receptors functions with special reference to VDR, THR, RXR, ER and AR. Involvement of PXR and CAR in drug metabolism and hepatic cancer. Role of nuclear receptors as drug targets in metabolic disorders and endocrine-related cancer. (RKT)
3. Cell adhesion and signaling, Cell polarity and tissue patterning, Diseases associated with cell-cell junctions including rare diseases like Retinitis pigmentosa type 12 and modulation of cellular junctions by pathogens.
4. Infectious and non-infectious diseases: hepatitis C, Leishmaniasis, Helicobacter pathogenesis, Candidiasis, Inflammatory Bowel Disease, Pathobiology of innate immune dysfunction, DNA replication and cell cycle regulation of medically important pathogens: *Helicobacter pylori* and *Plasmodium falciparum*, application of codon-shuffling against Mycobacterium tuberculosis and *Plasmodium falciparum*, *Mycobacterium tuberculosis* and drug resistance, Enteropathogenic *E.coli*.
5. Chemical biology, radiation biology and cell signaling; development of novel synthetic methodology for drug development and study of their mechanism of action based on genomics and proteomics against radiotherapy; cancer; development of antibiotics for gyrase resistant strains targeting topoisomerase 1A gene in bacteria.
6. Synthetic organic chemistry: Synthesis of biologically active heterocycles using novel methodology with transition metal catalyst.
7. Designing /discovering codon shuffled de-novo peptide/protein inhibitors against essential/crucial proteins of pathogens. To study crucial host-pathogen interactions by designing codon shuffled de-novo peptide/protein inhibitors. Synthesis and

selection of novel drug like de-novo peptide binders by codon shuffling method that may inhibit crucial host-pathogen interactions in Malaria and Tuberculosis diseases.

8. Tuberculosis: Mechanism of latency and re-activation of TB disease. Immunotherapy of TB and immune mechanism of host evasion, mechanism of drug resistance. Drug discovery for the therapy of regular drug resistant TB, vaccine discovery.
8. Diagnostics and medical proteomics, and mass spectrometry-based metabolomics. Selected students will have the option to choose their research area depending on their merit/aptitude and according to the vacancy available.
9. The biochemical and molecular mechanism(s) of metabolic disorder-induced chronic inflammatory diseases including diabetic and cardiovascular complications, cancer, asthma and COPD through cutting edge research and discover and develop potential mechanism-based molecular medicine for clinical intervention and therapy.

ADMISSIONS TO PROGRAMMES OF STUDY:

(i) Ph.D. Programme in Molecular Medicine

The admission to PhD programme will be offered in following two modes:

A) Through JNU Entrance Exam: In this mode, the candidates will be selected through JNU Entrance Examination (JNUEE) followed by an interview of short-listed candidates, as per the UGC rules and regulations.

B) Through NET-JRF: In this mode, the candidates with a valid NET/Junior Research Fellowship (JRF) awarded through National Eligibility Tests conducted by CSIR/ UGC, UGC, DBT, ICMR etc. will be directly called for interview and such candidates may be exempted from JNU Entrance Exam.

For more details about the Special Centre, visit the JNU website : <https://www.jnu.ac.in/scmm>

ELIGIBILITY CRITERIA:

Ph.D. Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Special Centre for Molecular Medicine (SCMM)	Molecular Medicine-CMMH (905)	<p>Only those candidates shall be considered for Admission to the Ph.D. programme, who have either --</p> <p>Obtained masters degree or equivalent from recognized University /institution in any branch of biological sciences /chemical sciences with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p style="text-align: center;">OR</p> <p>Obtained MBBS/M.Pharm./M.VSc/MD degree with at least 55% marks (during 2014 or later) from a recognized University/Institution OR Candidates with M.Tech. degree with at least 55% marks in Biological/Chemical Sciences.</p> <p style="text-align: center;">OR</p> <p>Obtained two years M.Phil. Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institution and one publication and relevant Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

17. CENTRE FOR THE STUDY OF LAW AND GOVERNANCE

The manifold agendas of public policy and legal reform in India remain impoverished in the absence of substantial research in many areas that impact the everyday life of Indian citizens. Since its inception, the Centre for the Study of Law and Governance has initiated a new interest in examining how practices of governance get stabilised through law and how these practices open law to further contestation. The Centre adopts a multidisciplinary approach to framing research and teaching on the relationship between law and governance. The study of governance, in its various forms and at different sites, is central to several contemporary issues: the reform of public institutions and public law; the creation and establishment of procedures and rules that lead to greater efficiency, transparency, and accountability; and the challenge of making governance more inclusive and participatory through the strengthening of democracy and civil society. The Centre's interdisciplinary focus draws on critical social science approaches in its attempt to explore how practices of law and governance are embedded in political, economic, social and historical processes; how practices of law and governance are dispersed over various sites ranging from the government, bureaucracy, judiciary, community and family; the socio-legal processes that deter or provide access to justice; and notions of governmentality, sovereignty and rights in specific politico-jural regimes. The normative ideals of justice, equity and freedom inflect the Centre's critical interrogations of existing institutions and practices of law and governance. It is in this spirit that, while the Centre's academic programme produces scholarly research in these areas, it also seeks to translate theory into practice by initiating debate, sharing research and providing a platform for dialogue between the academy, government, civil society and international agencies. In almost two decades since it came into existence the Centre for the Study of Law and Governance has developed at least three attributes that make it a distinctive part of the intellectual landscape. First, the Centre is explicitly inter-disciplinary, as evidenced by the diverse academic trainings of its faculty and its student body as well as in the teaching and research programme it has fostered. Second, the Centre has developed a reputation as a location where academic rigour can be meshed with reflection on policy and advocacy. Third, the Centre has become a focal point for understanding the links between the law and governance in practice. The ongoing research by the faculty and research students, a working paper series published by CSLG, an active seminar program and annual lectures by distinguished guests mark the other activities of the Centre. CSLG offers Ph.D. programme in Law and Governance.

PROGRAMMES OF STUDY: The Centre offers admission to Ph.D. programme.

The PhD programme is marked by its

- multi-disciplinary orientation in both course design and teaching plan;
- substantive academic content;
- distinctiveness when compared to available courses in other Indian Universities; and
- coherence as a programme of study with a policy-orientation.

The objectives of the Programme include the following:

- To provide an interdisciplinary perspective on the study of law and governance, by introducing the basic concepts, debates and the now extensive literature on governance and legal issues, emanating from the disciplines of political science, economics, public administration/public policy, sociology and jurisprudence.
- To equip students with the skills necessary to undertake research in areas of public policy, including a special focus on the legal implications of these issues, by developing their expertise in these diverse disciplinary areas, and so to enable a more complex and multi-faceted approach to issues of governance, public policy and law.
- To acquaint the qualified practitioner—policy-maker, civil servant, lawyer or NGO worker—with the major issues in this area.

All admissions to the PhD programme will be made through the JRF route. Those who have qualified the UGC-JRF examination are eligible to apply and final selection will be made through an interview. For the interview, candidates must prepare a 1,000-word research proposal with a bibliography. The candidate will be questioned on her/ his domain knowledge, work experience and proposed research project.

For more details about the Centre/Special Centre, visit the JNU website: <https://www.jnu.ac.in/cslg>

ELIGIBILITY:

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for the Study of Law & Governance (CSL&G)	Law & Governance – CLGH (907)	<p>Only those candidates shall be considered for admission to the Ph.D. programme who have –</p> <p>Master's Degree in Law, Political Science, Public Administration, Economics, Sociology, History, Philosophy, Social Work, Development Studies and cognate areas/ disciplines in the social sciences or humanities with at least 55% marks in aggregate or its equivalent Grade 'B' in the UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed) or an equivalent degree from a foreign educational Institution.</p> <p style="text-align: center;">OR</p> <p>M. Phil. Degree in Law, Political Science, Public Administration, Economics, Sociology, History, Philosophy, Social Work, Development Studies and cognate areas/ disciplines in the social sciences or humanities with at least 55% marks from any Indian University recognized by the University Grants Commission or from a Foreign Educational Institution;</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC regulations 2016</p>

18. SPECIAL CENTRE FOR NANOSCIENCES

Special Centre for Nanosciences (SCNS) is an inter-disciplinary research and teaching centre at JNU. The Nanoscience related research topics pursued currently include nanoscale interface, ferromagnetic nanostructures, spintronics, magnetic nano composites, microwave absorbers and nano-devices, magnetic nano particles based targeted drug-delivery & treatment of cancer cells by radio-frequency-(RF) Hyperthermia, electrode materials for Li-ion batteries, hydrogen generation, bio-sensors, hybrid nanomaterials, anti-biofilm materials, Electron microscopy, ferroelectric/ multiferroic nanocomposites, soft condensed matter, nano-biotechnology and nanomedicine (nano-based drug delivery, therapy, toxicity and bioimaging) for infectious diseases etc.

The Centre has faculty members with background in Physics, Chemistry, Biology, Electronics, Material Sciences, Electron Microscopy etc.

Presently, Common Instrumentation Facility (CIF) of the Centre has nanomaterial synthesis and characterization facilities which include XRD, UV-vis spectrophotometer, Raman spectrophotometer, Dynamic Light Scattering, Zeta Potential Measurement, UV-NIR Spectrophotometer, Viscometry, Tensiometry, Potentiostat-Galvanostat, Contact Angle Measurement, Cell culture facility, BOD incubator, Laminar Hood, Fluorescence Spectrometer, Elisa Reader etc. A fully functional Scanning Electron Microscope (SEM) is a recent addition to the infrastructure of the centre.

A wide range of analytical facilities including Transmission Electron Microscopy, Scanning Electron Microscopy, PPMS, Confocal Microscope, Confocal-Raman-AFM, XRD, FTIR and other on-line cell imaging facilities are available at the Advanced Instrumentation and Research Facility (AIRF), a central facility of JNU.

The Nano-electronics and Microwave laboratory consists of DC and microwave probe-stations, microwave nano-devices testing facilities like Vector Network Analyzer (Keysight Inc. PNA - 44 GHz), Spectrum Analyzer (Rohde and Schwarz Inc. - 40 GHz), Microwave Power Amplifier (Marki Microwave Inc.) for absorber testing, angle and temperature dependent variable-frequency Ferromagnetic Resonance (FMR) system. For nanostructure deposition, we have multi-target RF Sputtering and thermal evaporation system. For *in vitro* and *in vivo* study on human cell-lines and mouse model, we have automated Radio-Frequency Hyperthermia system (MSI AUTOMATION, INC.).

The Ferroelectrics and Multiferroics Characterization Laboratory has Impedance Analyzer (20 Hz to 120 MHz, Keysight Technologies), Ferroelectric PE Hysteresis Loop Measurement Setup (aixACCT, 10 kV); Liquid Nitrogen Cryostat (77 – 800 K); d_{33} test meter; etc. This Laboratory is involved in the study of size dependent properties of Ferroelectric and Piezoelectric Materials, Multiferroics, Electrocaloric Materials, Structural Phase Transitions in Ferroic Perovskites and Functional Nanomaterials for various Applications.

Nanobio laboratory is equipped with human cell lines culture and storage facility (-20°C and -80 °C) and Fluorescence Microscope for study of nanotoxicity and nanobio interactions. We have Microfluidic based biosensor with mask less lithography system, Electrospinning setup for synthesis of nanofibres for various applications and Multichannel Electrochemical analyzer for detection of

multianalytes on a single electrode. Research facilities are also available for study of Water remediation using nanostructured materials, Optical detection of analytes in environment and clinical samples and Bio-imaging of fluorescent materials.

The central theme of thin-film and electron microscopy research group is "Nanostructure - Physical property correlation in technologically important nanostructures using Transmission Electron Microscopy (TEM) and Scanning Electron Microscopy (SEM)". Thin-film and electron microscopy lab has a RF-DC magnetron sputtering system, metallurgical light microscope, spin coater, LCR meter etc. Low speed saw and ion milling system for the preparation of SEM and TEM samples is available. Thin-films and bulk materials of functional oxides are being synthesized using mixed oxide and wet chemistry methods. Lead-free ferroelectrics, photovoltaic materials and semiconductor films are currently being investigated.

The investigation of the Nanobiotechnology and Nanomedicine laboratory is being carried out involving nano-based drug delivery, therapy, toxicity and fluorescent bioimaging for infectious diseases. Nanomedicine laboratory is equipped with facilities for synthesis of nano-based antimicrobials for infectious diseases and study of their molecular mechanisms of action.

PROGRAMME OF STUDY

Ph.D. programme in Nanoscience.

The admission to PhD program will be in two modes: A) JNU Entrance Exam and B) Junior Research Fellowship (JRF) mode.

Entry for PhD through JNU Entrance Exam: The admission to PhD will be based on an All India Computer Based Test (CBT) conducted by the University at different centers spread all over the country. Based on the Computer Based Test (CBT), short-listed candidates will have to appear in the interview. Admission will be offered to candidates finally selected on the basis of their performance in the written test and interview.

Entry for PhD through JRF Mode: Candidates with a valid Junior Research Fellowship (JRF) awarded through National Eligibility Tests conducted by CSIR/UGC, UGC, DBT, ICMR etc. will be exempted from JNU Entrance Exam and directly called for interview.

For more details about the Centre/Special Centre, visit the JNU website: <https://jnu.ac.in/scns>

ELIGIBILITY CRITERIA:

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Special Centre for Nano Sciences	Nano Sciences – NNSH (908)	<p>Master's degree in Science/ Engineering with 55% marks of a recognized University/ Institution or equivalent grade 'B' in UGC 7-point scale or an equivalent grade in a point scale where grading system is followed.</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech.</p> <p>Relaxation to SC/ ST/ OBC (Non-creamy layer)/PWD as per the latest UGC regulations implemented by JNU will be applicable.</p>

19. SPECIAL CENTRE FOR DISASTER RESEARCH

Social Science is growing into and developing an understanding of technology and natural science which can bring human safety and sustainable development. This objective requires transdisciplinary interaction, understanding and knowledge. The universe is one holistic habitat for humanity to survive. It may also be man's last habitat if we continue to allow the magnitude, frequency and recurrence of disasters to increase. In consideration of this objective the Special Centre for Disaster Research aims to build upon an appropriate relationship between social sciences, ICT and geospatial sciences on one hand and between the government and academic research on the other hand. The objective of teaching and research in disaster studies is to understand how disasters affect development, national resources and human and nonhuman lives. It also highlights the need for ecologically sensitive land use policies through GIS mapping and demarcation of fragile ecological areas. The centre looks into the new areas of information and communication research (ICT), Artificial Intelligence and preparedness to disasters, ecosystem and communities, smart cities and urban development. The research would also define the parameters of scientific preparedness, technology of mitigation and institutional accountability. Much of disaster prevention is about transparency, accountability, constitutional and environmental law which are helped through a basic understanding of geospatial sciences, Computational intelligence and community resilience. Those who are ready for a more versatile and contemporary thought processes are encouraged to apply.

Programme of Study:

- (i) Ph.D. programme in Disaster Studies

For more details about the Special Centre, visit the JNU website : <http://scdr.jnu.ac.in/>

ELIGIBILITY CRITERIA:**PhD Programme**

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Special Centre for Disaster Research (SCDR)	Disaster Studies - DSSH (911)	<p>Only those candidates shall be considered for admission to the Ph. D. Programme who have —</p> <p>Master's Degree/BE/B.Tech/MBBS/AYUSH/LL.M./bachelors level degree with minimum duration of four years with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Obtained two years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech./MBBS/AYUSH/LL.M./bachelors level degree with minimum duration of four years.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

20. SPECIAL CENTRE FOR NATIONAL SECURITY STUDIES (SCNSS)**Special Centre for National Security Studies**

Special Centre for National Security Studies (SCNSS) is one of the newest centres established in JNU (2018) to study National Security in comprehensive and holistic manner. It has a prime focus on analyzing, comparing and theorizing the security issues of India. The Centre intends to examine, reflect on and provide policy inputs and alternative policy suggestions to relevant security agencies of India. The Centre is a super specialty centre of national importance on the domestic and external security issues of India. The Centre intends to examine all core national security issues from the prism of Indian civilizational knowledge and its security traditions, to protect its national interest, territorial integrity and world peace. It is an interdisciplinary center combining social sciences and civilizational/cultural insights of India with a strong focus on latest emerging technologies relating especially to cyber, space, chemical, biological, nuclear and Artificial Intelligence (AI).

For more details about the Centre, visit the JNU website: <https://www.jnu.ac.in/scnss>

ELIGIBILITY:**PhD Programme**

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Special Centre for National Security Studies (SCNSS)	National Security Studies – NSSH (916)	<p>BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed).</p> <p>OR</p> <p>Master's degree with at least 55% marks in social science or natural science or Humanities.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

21. SPECIAL CENTRE FOR SYSTEMS MEDICINE

Systems Medicine is a modern interdisciplinary branch of science that combines disease biology, systems biology including genomics, transcriptomics, proteomics, metabolomics, metabonomics, culturomics, immunomics, regulomics, phenomics, computational biology, high throughput data analysis, integrated with biobanking and animal studies to provide a comprehensive understanding of various aspects of disease studies.

The classical medicine approach lacks mechanistic understanding of molecular and cellular networks and pathology in almost every disease area. Most of the time, diagnosis and understanding of a particular disease is based on a reductionist model of a single or a few molecules. The key unmet need is to connect underlying molecular descriptors using large patient cohorts for better understanding of disease prevention, prediction, diagnosis and treatment.

Programme of Study

(a) PhD (Systems Medicine)

A limited number of scholars will be admitted to PhD programme. The courses are offered to make a strong foundation in systems medicine. The credit courses will be divided in first two semesters of the programme that include both basic and applied aspects. The second semester will mark the beginning of hands-on training in various aspects and techniques in systems medicine. In no case, a research scholar is allowed to repeat any course either in case of failure or for improving the grades. The programme being interdisciplinary, the research scholar will work under the joint supervision of faculty members.

Salient Features of Teaching and Training Programme

The competitive and vibrant PhD programme in Systems Medicine embarks on creating a robust academic research foundation in the following cutting-edge areas:

- i. Advances in systems biology and biological data
- ii. Molecular basis of human diseases
- iii. Advances in genomics and transcriptomics
- iv. Advances in proteomics and metabolomics
- v. Advances in immunomics and pathomics
- vi. Ethics in research, regulatory compliances, IPR and entrepreneurship

In addition, students admitted to the SCSM PhD program shall be trained in the following areas:

- i. Research methodology and lab techniques
- ii. Research manuscript writing and editing
- iii. Critical analysis and presentation of research output
- iv. Writing and defending research proposals

SCSM faculty members' laboratories are well equipped with state-of-the-art facilities for the cutting-edge research in the area of systems medicine. Additionally, the campus houses Central Instrument Facilities and Advanced Instrumentation Research Facility.

The interview of the candidates will be conducted by the Admission Committee of the Special Centre, where the candidates are required to discuss their research interest/area through a presentation. The competence of the candidate to undertake the proposed research; the suitability of the research topic/area at the Special Centre; and the potential of the proposed research to contribute new/additional knowledge, etc will be considered.

For more details about the Centre, visit the JNU website : <https://jnu.ac.in/scsm>

ELIGIBILITY:

PhD Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Special Centre for Systems Medicine (SCSM)	Systems Medicine – SSMH (917)	<p>Master's degree (M.Sc.,MD, MS, M.VSc, M. Pharma)/ MBBS, B.Tech, B. Pharma or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed); or an equivalent degree from a foreign educational institution.</p> <p>Relaxation to SC/ST/OBC (Non creamy layer)/PWD as per the UGC Regulations 2016.</p>

III. RESERVATIONS OF SEATS FOR SC/ST/OBC/PWD CANDIDATES

The admissions will be given as per the reservation policy of the Government of India.

RESERVATION OF SEATS FOR SCHEDULE CASTE (SC)/TRIBE (ST) APPLICANTS

- 15 % of the total numbers of seats are reserved for applicants belonging to Scheduled Caste and 7.5% for Scheduled Tribes.
- Applicant must note that Certificate from any person/ authority, other than the Competent Authority empowered to issue such certificate, shall not be accepted in any case. If the applicant happens to belong to SC or ST, applicant's caste/ tribe must be listed in the appropriate category Govt. of India schedule. **The Caste Certificate should clearly state:**
 - (a) Name caste/ tribe of the candidate,
 - (b) whether applicant belongs to SC or ST,
 - (c) District and the State or Union Territory of applicant's usual place of residence and
 - (d) The appropriate Govt. of India schedule under which the candidate's caste/ tribe is approved as SC or ST.
- If the applicants do not have the SC or ST caste/ tribe certificate at the time of (i.e. final registration after selection), the applicant may upload the acknowledgement slip of the SC or ST caste/tribe certificate application. However, at the time of admission, the applicant will have to produce the valid SC or ST caste/tribe certificate. If an SC or ST applicant seeks admission under unreserved category, the applicant should satisfy the minimum eligibility requirement for that category.
- SC/ST students who get admission under open merit (unreserved) will not be included in the reserved quota, i.e. (15% + 7.5%)

RESERVATION OF SEATS FOR OTHER BACKWARD CLASSES (NON-CREAMY LAYER, CENTRAL LIST) APPLICANTS

- 27% seats will be reserved for the applicants belonging to Other Backward Classes (OBCs) (non-creamy layer, central list).
- At the time of admission to an OBC applicant, the University will ensure that the caste of the candidate must be included in the Central List of OBC (the OBC status is to be determined on the basis of the Central List of OBCs notified by the Ministry of Social Justice and Empowerment on the recommendations of the National Commission for Backward Classes available on the following website: <http://ncbc.nic.in/backward-classes/index.html>).
- The certificate must mention non-creamy layer status of the applicant (Non-creamy layer status issued by an authority mentioned in DOPT Office Memorandum no. 36012/22/93-Estt. (SCT) dated 15.11.1993).
- The OBC applicants who belong to the 'Non-Creamy Layer' and whose caste appears in the Central List of the OBCs only, shall be eligible to be considered for admission under the OBC category (Validity period of OBC certificate in respect of 'creamy layer' status of the applicants as per DOPT Office Memorandum No.36036/2/2013-Estt. (Res-I) dated 31 March 2017 or as amended time to time). The validity of the non-creamy layer certificate shall be for the financial year 2021-22.
- If the applicant does not have the latest OBC non-creamy layer certificate at the time of upload, the applicant may upload old OBC non-creamy layer certificate or latest acknowledgement slip of OBC non-creamy layer certificate application. However, at the time of admission, the applicant will have to invariably produce the latest OBC non-creamy layer certificate.

THE FOLLOWING ARE EMPOWERED TO ISSUE THE SC/ST/OBC CERTIFICATE:

- (a) District Magistrate/ Additional District Magistrate/ Collector/ Deputy Commissioner/ Addl. Deputy Commissioner/ Deputy Collector/ 1st class Stipendiary Magistrate/ City Magistrate/ Sub-Divisional Magistrate/ Taluka Magistrate/ Executive Magistrate/ Extra Assistant Commissioner.
- (b) Chief Presidency Magistrate/ Addl. Chief Presidency Magistrate/ Presidency Magistrate.
- (c) Revenue Officer not below the rank of Tehsildar.
- (d) Sub-Divisional Officer of the area where the Applicant and/ or his family normally resides.
- (e) Administrator/ Secretary to the Administrator/ Development Officer (Lakshadweep Islands).

RESERVATION OF SEATS FOR PERSONS WITH DISABILITIES (PWD)

- As per the provisions of Rights of Persons with Disabilities Act, 2016, not less than five percent (5%) seats are reserved in admission for Persons with Benchmark Disabilities, where "person with benchmark disability" means a person with not less than forty percent (40%) of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability, as certified by the certifying authority.
- Reservation of 5% seats in respect of PWD candidates shall be done horizontally, as per the Government of India Guidelines/Policy.
- The following specified categories of disabilities as mentioned in the Schedule to the Rights of Persons with Disabilities Act, 2016 [See clause (zc) of section 2 of Rights of Persons with Disabilities Act, 2016] are eligible to get the benefit of the said reservation:

1. Physical disability—

A. **Locomotor disability** (a person's inability to execute distinctive activities associated with movement of self and objects resulting from affliction of musculoskeletal or nervous system or both), including—

- (a) "leprosy cured person" means a person who has been cured of leprosy but is suffering from—
 - (i) loss of sensation in hands or feet as well as loss of sensation and paresis in the eye and eye-lid but with no manifest deformity;
 - (ii) manifest deformity and paresis but having sufficient mobility in their hands and feet to enable them to engage in normal economic activity;
 - (iii) extreme physical deformity as well as advanced age which prevents him/her from undertaking any gainful occupation, and the expression "leprosy cured" shall construed accordingly;
- (b) "cerebral palsy" means a Group of non-progressive neurological condition affecting body movements and muscle coordination, caused by damage to one or more specific areas of the brain, usually occurring before, during or shortly after birth;
- (c) "dwarfism" means a medical or genetic condition resulting in an adult height of 4 feet 10 inches (147 centimeters) or less;
- (d) "muscular dystrophy" means a group of hereditary genetic muscle disease that weakens the muscles that move the human body and persons with multiple dystrophy have incorrect and missing information in their genes, which prevents them from making the proteins they need for healthy muscles. It is characterised by progressive skeletal muscle weakness, defects in muscle proteins, and the death of muscle cells and tissue;
- (e) "acid attack victims" means a person disfigured due to violent assaults by throwing of acid or similar corrosive substance.

B. Visual impairment—

- (a) "blindness" means a condition where a person has any of the following conditions, after best correction—
 - (i) total absence of sight; or
 - (ii) visual acuity less than 3/60 or less than 10/200 (Snellen) in the better eye with best possible correction; or
 - (iii) limitation of the field of vision subtending an angle of less than 10 degree.
- (b) "low-vision" means a condition where a person has any of the following conditons, namely:—
 - (i) visual acuity not exceeding 6/18 or less than 20/60 upto 3/60 or upto 10/200 (Snellen) in the better eye with best possible corrections; or
 - (ii) limitation of the field of vision subtending an angle of less than 40 degree up to 10 degree.

C. Hearing impairment—

- (a) "deaf" means persons having 70 DB hearing loss in speech frequencies in both ears;
- (b) "hard of hearing" means person having 60 DB to 70 DB hearing loss in speech frequencies in both ears;

D. **"Speech and language disability"** means a permanent disability arising out of conditions such as laryngectomy or aphasia affecting one or more components of speech and language due to organic or neurological causes.

2. Intellectual disability, a condition characterised by significant limitation both in intellectual functioning (reasoning, learning, problem solving) and in adaptive behaviour which covers a range of every day, social and practical skills, including—

- (a) "specific learning disabilities" means a heterogeneous group of conditions wherein there is a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or to do mathematical calculations and includes such conditions as perceptual disabilities, dyslexia, dysgraphia, dyscalculia, dyspraxia and developmental aphasia;
- (b) "autism spectrum disorder" means a neuro-developmental condition typically appearing in the first three years of life that significantly affects a person's ability to communicate, understand relationships and relate to others, and is frequently associated with unusual or stereotypical rituals or behaviours.

3. Mental behaviour —

“mental illness” means a substantial disorder of thinking, mood, perception, orientation or memory that grossly impairs judgment, behaviour, capacity to recognise reality or ability to meet the ordinary demands of life, but does not include retardation which is a condition of arrested or incomplete development of mind of a person, specially characterised by subnormality of intelligence.

4. Disability caused due to—

(a) chronic neurological conditions, such as—

- (i) “multiple sclerosis” means an inflammatory, nervous system disease in which the myelin sheaths around the axons of nerve cells of the brain and spinal cord are damaged, leading to demyelination and affecting the ability of nerve cells in the brain and spinal cord to communicate with each other;
- (ii) “parkinson's disease” means a progressive disease of the nervous system marked by tremor, muscular rigidity, and slow, imprecise movement, chiefly affecting middle-aged and elderly people associated with degeneration of the basal ganglia of the brain and a deficiency of the neurotransmitter dopamine.

(b) Blood disorder—

- (a) “haemophilia” means an inheritable disease, usually affecting only male but transmitted by women to their male children, characterized by loss or impairment of the normal clotting ability of blood so that a minor wound may result in fatal bleeding;
- (iii) “thalassemia” means a group of inherited disorders characterised by reduced or absent amounts of haemoglobin.
- (iv) “sickle cell disease” means a hemolytic disorder characterised by chronic anemia, painful events, and various complications due to associated tissue and organ damage; “hemolytic” refers to the destruction of the cell membrane of red blood cells resulting in the release of hemoglobin.

5. Multiple Disabilities (more than one of the above specified disabilities) include deaf blindness which means a condition in which a person may have combination in which a person may have combination of hearing and visual impairments causing severe communication, developmental, and educational problems.

6. Any other category as may be notified by the Central Government.

Candidates claiming reservation as per the disability Act 2016, shall be required to upload the required Medical Certificate/and produce the original Medical Certificate in the required format for the relevant category of disability i.e. from V, VI and VII, as the case may be. Required proforma of from V, VI and VII are given at Page No. 68-70.

Relaxation for admission to Diploma of Proficiency programme: All OBC category (non creamy layer) candidates are eligible to 10% relaxation in the percentage of marks in the qualifying examination in relation to open category. The SC/ST and Person with Disability (PWD) candidates who have passed the qualifying examination irrespective of their percentage of marks are eligible for admission.

Relaxation for admission to Ph.D. programmes.

A relaxation of 5% marks from 55% to 50%, or an equivalent relaxation of grade may be allowed for those belonging to SC/ST /OBC (non-creamy layer)/ **PWD** as per the decision of the UGC from time to time;

All SC/ST /OBC and PWD candidates are required to submit certificate in respect of their claims from the authorized officers as notified by the Government of India for the purpose from time to time.

Candidates belonging to SC/ST/OBC/PWD category who are selected on their own merit with General Category candidates are not counted under reserved quota. In programmes where viva voce is prescribed candidates belonging to SC/ST/OBC/PWD/EWS and General Category will be called for Viva-voce under their respective category at that stage. Further in final merit, reserved category candidates qualifying on their own merit should be adjusted in UR Category as per Gol rules.

IV. RESERVATION FOR ECONOMICALLY WEAKER SECTIONS (EWSs)

In accordance with the provisions of the constitution (One Hundred and Third Amendment) Act 2019, and with reference to OM No. 20013/01/2018-BC-II dated 17th January, 2019 of Ministry of Social Justice and Empowerment, enabling provision of reservation for the economically weaker Sections (EWSs) who are not covered under the existing scheme of reservation for the Scheduled Castes, the Scheduled Tribes and the Socially and Educationally Backward Classes in Admission. Reservation shall be extended to EWSs category candidates in all programmes of study. Guidelines issued by Government of India from time to time regarding criteria for Income & Assets, issuing authority/verification of certificate shall be followed by the University for implementing EWSs reservation.

Quantum of Reservation

The persons belonging to EWSs who are not covered under the scheme of reservation for SCs, STS and OBCs shall get 10% reservation in Admission to various programmes of study.

Criteria of Income & Assets:

Persons who are not covered under the existing scheme of reservations for the Scheduled Castes, the Scheduled Tribes and the Socially and Educationally Backward Classes and whose family has gross annual income below **Rs. 8.00 lakh (Rupees eight lakh only)** are to be identified as EWSs for the benefit of reservation. Family for this purpose will include the person who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of 18 years. The income shall include income from all sources i.e. salary, agriculture, business, profession etc. and it will be income for the financial year prior to the year of application, also persons whose family owns or possesses any of the following assets shall be excluded from being identified as EWSs, irrespective of the family income:

- i. 5 acres of Agricultural Land and above;
- ii. Residential flat of 1000 sq. ft. and above;
- iii. Residential plot of 100 sq. yards and above in notified municipalities;
- iv. Residential plot of 210 sq. yards and above in areas other than the notified municipalities.

Income and Asset Certificate issuing Authority

The income and assets of the families as mention in Criteria of Income & Assets would be required to be certified by an officer not below the rank of Tehsildar in the States/UTs in the prescribed format as given in Annexure-I.

Government of
(Name & Address of the authority issuing the certificate)

INCOME & ASSEST CERTIFICATE TO BE PRODUCED BY ECONOMICALLY WEAKER SECTIONS

Certificate No. _____

Date: _____

VALID FOR THE YEAR _____

This is to certify that Shri/Smt./Kumari _____ son/daughter/wife of _____ permanent resident of _____, Village/Street _____ Post Office _____ District _____ in the State/Union Territory _____ Pin Code _____ whose photograph is attested below belongs to Economically Weaker Sections, since the gross annual income* of his/her 'family'*** is below Rs. 8 lakh (Rupees Eight Lakh only) for the financial year _____. His/her family does not own or possess any of the following assets***:

- I. 5 acres of agricultural land and above;
- II. Residential flat of 1000 sq. ft. and above;
- III. Residential plot of 100 sq. yards and above in notified municipalities;
- IV. Residential plot of 200 sq. yards and above in areas other than the notified municipalities.

2. Shri/Smt./Kumari _____ belongs to the _____ caste which is not recognized as a Scheduled Caste, Scheduled Tribe and Other Backward Classes (Central List)

Recent Passport
size attested
photograph of
the applicant

Signature with seal of Office _____

Name _____

Designation _____

*Note 1.: Income covered all sources i.e. salary, agriculture, business, profession, etc.

**Note 2: The term "Family" for this purpose include the person, who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of 18 years

***Note 3: The property held by a "Family" in different locations or different places/cities have been clubbed while applying the land or property holding test to determine EWS status.

FORM OF CASTE CERTIFICATE TO BE PRODUCED BY THE CANDIDATES BELONGING TO SC/ST CATEGORIES

Form of Certificate as prescribed in M.H.A, O.M. NO.42/21/49-N.G.S., dated 28-1-1952 as revised in Dept. of Per.& A.R., Letter No.36012/6/76-Estt.(S.C.T.), dated 29-10-1977, to be produced by a candidate belonging to a Scheduled Caste or Scheduled Tribe in support of his claim.

FORM OF CASTE CERTIFICATE

This _____ is to certify that Shri/Shrimathi*/Kumari* _____ Son/daughter* of _____
 of _____ village/town* _____ in _____ District/
 Division* _____ of _____ the State/ Union _____ Territory* _____ belongs to _____ the

Caste/Tribe* which is recognized as a Scheduled Caste Scheduled Tribe* Under:
 The Constitution (Scheduled Castes) Order, 1950.

*The Constitution (Scheduled Tribes) Order, 1950.

*The Constitution (Scheduled Castes) (Union Territories) Order, 1951.

*The Constitution (Scheduled Tribes) (Union Territories) Order, 1951.

(As amended by the Scheduled Castes and Schedules Tribes Lists (Modification Order) 1956, the Bombay Reorganization Act, 1960, the Punjab Reorganization Act, 1966, the State of Himachal Pradesh Act, 1970, the North-Eastern Areas (Reorganization) Act, 1971 and the Scheduled Castes and Schedules Tribes Orders (Amendment) Act, 1976.)

*The Constitution (Jammu and Kashmir) Scheduled Castes Order, 1956;

*The Constitution (Andaman and Nicobar Islands) Scheduled Tribes Order, 1959, as amended by the Scheduled Castes and Scheduled Tribes Orders (Amendment) Act, 1976;

*The constitution (Dadra and Nagar Haveli) Scheduled Castes Order, 1962; *The Constitution (Dadra and Nagar Haveli) Scheduled Tribes Order, 1962; *The Constitution (Pondicherry) Scheduled Castes Order, 1964;

*The Constitution (Uttar Pradesh, Scheduled Tribes Order, 1967;

*The Constitution (Goa, Daman and Diu) Scheduled Castes Order,

1968; *The Constitution (Goa,

Daman and Diu) Scheduled Tribes Order, 1968;] *The Constitution (Nagaland) Scheduled Tribes

Order, 1970; *The Constitution (Sikkim) Scheduled Castes Order, 1978;

*The Constitution (Sikkim) Scheduled Tribes Order, 1978;

*The Constitution (Jammu and Kashmir) Scheduled Tribes Order, 1989. *The Constitution (Scheduled Castes) Order (Amendment)

Act, 1990. *The Constitution (Scheduled Tribes) Order Amendment Act, 1991.

*The Constitution (Scheduled Tribes) Order Second Amendment Act, 1991.

2. **This certificate is issued on the basis of the Scheduled Castes/Scheduled Tribes Certificate issued to Shri/Shrimathi* _____ father/mother* of Shri/Shrimathi/Kumari* _____ of village/town* _____ in District/Division* _____ of the State/Union Territory* _____ who belong to the Caste/Tribe* which is recognized as a Scheduled Caste/Scheduled Tribe* in the State/Union Territory* _____ issued by the _____ dated _____.

3. Shri/Shrimathi*/Kumari* _____ and /or* his/her* family ordinarily reside(s) in village/town* _____ of _____ District/Division* of the State/Union Territory* of _____

Signature _____
 Designation _____
 (With seal of office)

State _____

Union Territory _____

Place _____

Date _____

Note: - The term "Ordinarily resides" used here will have the same meaning as in Section 20 of the Representation of the Peoples Act, 1950.

(iii) **Please delete the words which are not applicable.**

Applicable in the case of SCs, STs persons who have migrated from one State/UT.

The authorities competent to issue Caste Certificates are indicated below:

- (i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner/ Deputy Collector / Ist Class Stipendiary Magistrate / Sub-Divisional Magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of Ist Class Stipendiary Magistrate).
- (ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
- (iii) Revenue Officer not below the rank of Tehsildar, and Sub-Divisional Officer of the area where the candidate and / or his family resides.

OBC Non-Creamy Layer (NCL) Certificate Format**FORM OF CERTIFICATE TO BE PRODUCED BY OTHER BACKWARD CLASSES NCL)
APPLYING FOR ADMISSION TO CENTRAL EDUCATIONAL INSTITUTIONS (CEIs),
UNDER THE GOVERNMENT OF INDIA**

This to certify that Shri/Smt./Kum* _____ Son/ Daughter* of Shri/Smt.*
_____ of Village/ Town* _____ District/ Division* _____
in the State/Union Territory _____ belongs to the _____ community that is recognized
as a backward class under Government of India**, Ministry of Social justice and Empowerment's Resolution No.
_____ dated _____. ***.

Shri/Smt./Kum.* _____ and his/ her family ordinarily reside(s) in the
_____ District/Division of the _____ State/ Union Territory. This is also
to certify that he/she does NOT belong to the persons/ sections (Creamy Layer) mentioned in Column 3 of the Schedule to the
Government of India, Department of Personnel & Training O.M. No. 36012/22/93 Estt. (SCT) dated 08/09/93 which is amended vide
OM No. 36033/2004 Estt. (Res.) dated 09/03/2004, further amended vide OM No. 36036/2/2013 Estt. (Res.) dtd. 30/05/2014****.

Place:

District Magistrate/

Deputy Commissioner/

Dated:

Any other Competent Authority

(With seal of the Office)

*- Please delete word(s) which are not applicable.

**_- As listed in the Annexure (for FORM OBC NCL).

***_- The authority issuing the certificate needs to mention the details of Resolution of Government of India, in which the caste of the candidate is mentioned as OBC.

****_- As amended from time to time.

NOTE:

- (a) The term 'Ordinarily resides' used here will have the same meaning as in Section 20 of the Representation of the people Act, 1950.
- (b) The authorities competent to issue Caste Certificates are indicated below:
 - (i) District Magistrate/ Additional Magistrate/ Collector/ Deputy Commissioner/ Additional Deputy Commissioner/ Deputy Collector/ 1st Class Magistrate/ Sub Divisional magistrate/ Taluka Magistrate/ Executive Magistrate/ Extra Assistant Commissioner (not below the rank of 1st Class Stipendiary Magistrate).
 - (ii) Chief Presidency Magistrate/ Additional Chief Presidency Magistrate/ Presidency Magistrate.
 - (iii) Revenue Office not below the rank of Tehsildar' and
 - (iv) Sub Divisional Officer of the area where the candidate and/or his family resides.

Declaration by the Candidate in Lieu of OBC-NCL Certificate

Name of the Candidate: _____

Address: _____

Mobile No: _____

E mail: _____

Passport Size
Photo

I understand that as per the new guidelines from the Ministry of Personnel, Public Grievances and pensions, GoI, I am required to submit OBC-NCL certificate issued on **or after April 2021**.

Since I have not been able to collect the said certificate on time, I may kindly be allowed to appear in JNUEE 2022-23 provisionally and I will upload the OBC-NCL certificate (issued on or after April 1, 2021) at the University web portal at the earliest. I understand that failure to do so will lead to the withdrawal of OBC-NCL benefit. I also understand that, if qualified, my category will be adjusted accordingly in the Common Rank list.

Signature of Father/ Mother

Name: _____

Date: _____

Signature of Applicant:

Date:

Form - V**Certificate of Disability**

(In case of amputation or complete permanent paralysis of limbs or dwarfism and in case of blindness)

[See rule 18 (1)]

(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size
attested photograph(Showing face only) of the
person with disability.

Certificate No. _____

Date: _____

This is to certify that I have carefully examined Shri/Smt./Kum. _____
 Son/wife/daughter of Shri _____ Date of birth (DD/MM/YY) _____ Age _____ Years,
 male/female _____ registration No. _____ Permanent resident of House No. _____
 Ward/Village/Street _____ Post office _____ District _____ State _____,
 whose photograph is affixed above, and am satisfied that:

(A) he/she is a case of:

- Locomotor disability
- dwarfism
- blindness

(Please tick as applicable)

(B) The diagnosis in his/her case is _____.

(A) he/she has _____% (in figure) _____ percent (in words) permanent locomotor disability/ dwarfism/
 blindness in relation to his/her _____ (Part of body) as per guidelines (_____ number and date of issue of the
 guidelines to be specified).

2. The applicant has submitted the following documents as proof of residence: -

Nature of Document	Date of Issue	Details of authority issuing certificate

(Signature and Seal of Authorised Signatory of
notified Medical Authority)

Signature/thumb impression
of the person in whose favour
certificate of disability is
issued

Form – VI

Certificate of Disability
(In case of multiple disabilities)
[See rule 18 (1)]

(Name and Address of the Medical Authority issuing the Certificate)

Recent passport
size attested
photograph
(Showing face
only) of the person

Certificate No. _____

Date: _____

This is to certify that we have carefully examined Shri/Smt./Kum. _____ Son/wife/daughter of Shri _____
Date of birth (DD/MM/YY) _____ Age _____ Years, male/female _____.
Registration No. _____ Permanent resident of House No. _____ Ward/Village/Street _____ Post
Office _____ District _____ State _____ whose photograph is affixed above, and am satisfied that:

(A) he/she is a case of Multiple Disability. His/her extent of permanent physical impairment/disability has been evaluated as per guidelines (_____ number and date of issue of the guidelines to be specified) for the disabilities ticked below, and is shown against the relevant disability in the table below:

Sl. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Dwarfism			
5.	Cerebral Palsy			
6.	Acid attack Victim			
7.	Low vision	#		
8.	Blindness	#		
9.	Deaf	€		
10.	Hard of Hearing	€		
11.	Speech and Language disability			
12.	Intellectual Disability			
13.	Specific Learning Disability			
14.	Autism Spectrum Disorder			
15.	Mental Illness			
16.	Chronic Neurological Conditions			
17.	Multiple sclerosis			
18.	Parkinson's disease			
19.	Haemophilia			
20.	Thalassemia			
21.	Sickle Cell disease			

(B) In the light of the above, his/her over all permanent physical impairment as per guidelines (_____ number and date of issue of the guidelines to be specified), is as follows: -

In figure: - _____ percent

In words: - _____ percent

2. This condition is progressive/non-progressive/likely to improve/ not likely to improve.

3. Reassessment of disability is:

(i) Not necessary,

Or

(ii) is recommended/after _____ years _____ months, and therefore this certificate shall be valid till _____ (DD) (MM) (YY) _____

@ - e.g. Left/right/both arms/legs

- e.g. Single eye

€ - e.g. Left/Right/both ears

4. The applicant has submitted the following document as proof of residence: -

Nature of document	Date of issue	Details of authority issuing certificate

5. Signature and seal of the Medical Authority.

Name and Seal of Member	Name and Seal of Member	Name and Seal of the Chairperson

Signature/thumb impression of the
person in whose favour certificate of
disability is issued.

Form - VII

Certificate of Disability

(In case other than those mentioned in forms V and VI)
(Name and Address of the Medical Authority issuing the Certificate)
[See rule 18 (1)]

Recent passport
size attested
photograph

(Showing face
only) of the
person with
disability.

Certificate No. _____

Date: _____

This is to certify that we have carefully examined Shri/Smt/Kum. _____ Son/wife/daughter of
Shri _____ Date of birth (DD/MM/YY) _____ Age _____ Years, male/female _____ Registration No.
_____ Permanent resident of House No. _____ Ward/Village/Street _____ post office
_____ District _____ State _____, whose photograph is affixed above, and am satisfied that he/she
is a case of _____ disability. His/her extent of percentage physical impairment/disability has been evaluated as per guidelines
(_____ number and date of issue of the guidelines to be specified) and is shown against the relevant disability in the table
below: -

Sl. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Cerebral Palsy			
5.	Acid attack Victim			
6.	Low vision	#		
7.	Deaf	£		
8.	Hard of Hearing	£		
9.	Speech and Language disability			
10.	Intellectual Disability			
11.	Specific Learning Disability			
12.	Autism Spectrum Disorder			
13.	Mental illness			
14.	Chronic Neurological Conditions			
15.	Multiple sclerosis			
16.	Parkinson's disease			
17.	Haemophilia			
18.	Thalassemia			
19.	Sickle Cell disease			

(Please strike out the disabilities which are not applicable)

2. The above condition is progressive/non-progressive/likely to improve/ not likely to improve.

3. Reassessment of disability is:

(i) not necessary, or

(ii) is recommended/after _____ years _____ months, and therefore this certificate shall be valid till
(DD)/(MM)/(YY) _____

@ - e.g. Left/right/both arms/legs

- e.g. Single eye/ both eyes

£ - e.g. Left/Right/both ears

4. The applicant has submitted the following document as proof of residence: -

Nature of document	Date of issue	Details of authority issuing certificate

(Authorised Signatory of notified Medical Authority)
(Name and Seal)

Signature/thumb impression of the
person in whose favour certificate of
disability is issued.

Countersigned
{Countersignature and seal of the Chief Medical
officer/medical superintendent/Head of Government hospital, in case the
certificate is issued by a medical authority who is Not a Government servant (with seal)}

Note: In case this certificate is issued by a medical authority who is not a Government servant, it shall be valid only if countersigned by the Chief Medical Officer of the District.

V. GUIDELINES FOR PROVIDING SCRIBE TO THE CANDIDATES WITH BENCHMARK DISABILITY

Scribe facility shall be provided to the eligible candidates by NTA as per Government of India/NTA guidelines.

VI. Dr. B. R. AMBEDKAR CENTRAL LIBRARY

Dr B R Ambedkar Central Library was established in the year 1969 to support the educational and research programmes of the University by providing physical and online access to information. It is housed in Nine-storey tower building with a carpet area of about one lakh sq. ft. In accordance with the objectives of the University, the Central Library has the objectives and aims to procure, organize and disseminate information in different formats. It supports and promotes the use of its rich and diverse collection among the users.

Timings: Library is open 24x7 throughout the year, except three national holidays and Holi festival. The Library circulation services remain open from 9.00 a.m. to 8.00 p.m. throughout the year. During the examination days, the library services are extended up to 12 midnight for 45 days in each semester.

Library is fully automated and is using Virtua, Integrated Library Management Software for housekeeping jobs in different sections. From the year 2021 onwards the library has migrated its bibliographic databases of print resources to KOHA. The OPAC can be accessed at <http://jnucatalogue.jnu.ac.in:8000/>. The electronic resources can be accessed through the remote access platform 24X7, anytime and anywhere.

Library has a collection of 5 Lac + volumes which includes books, theses, dissertation, bound volume of journals, newsletters, Govt. and UN report, encyclopedias, dictionaries, thesaurus, glossaries, CDs ROMs, charts, maps, micro rolls, audio/video cassettes etc. Library is a depository of all Govt. publications and publications of some important international organisations like WHO, European Union, United Nations and its allied agencies etc.

Print /E-Books/E-Journals and Online Databases: Dr.B.R Ambedkar Central Library had subscription to 01 Print Journal, 02 Print Newspapers and 31 Online Databases for the year 2021. These online databases include:

Emerald eShodh Sindhu 312 eJournals Collection, IOP Science Collection, Prowess, CEIC-ISI Emerging Markets, PNAS Tier-4, ACM Digital Library, EBSCO Academic Search Complete, EBSCO Socindex, Hein Online Academic Core Database, Manupatra, Newspaper Direct – Library Press Display, Royal Society of Chemistry Gold – eSS Collection, TAIR Institutional Subscription, Turnitin – OC+, Grammarly Writing Support, EBSCO Discovery Service, EBSCO-International Security & counter Terrorism Ref. Centre Ezproxy License, Sage- Business Cases; Sage Management & Organization Studies; EBSCO HBP Student Success Package; Indiatat; Incites; IEL online, Artstor, SciFinder Academic Unlimited Access Plan, China Academic Journals (CAJWeb-Series F, G, H and J), Science Online (AAAS), CDS-Enterprise Research, ProQuest Academic Research Library. The Library is also having the perpetual access of ProQuest Historical Newspapers of Times of India Archive, Society for Industrial and Applied Mathematics (SIAM) and South Asian Archive. It also provides access to 14 online databases through UGC eSS-Consortia (INFLIBNET). These online databases include: American Chemical Society; American Institute of Physics (AIP); American Physical Society; Annual Reviews; Economic & Political Weekly; Institute for Studies in Industrial Development (ISID); J-Gate Plus; JSTOR; MathSciNet; Oxford University Press; Project Muse; Springer Link 1700 Collection and Nature Journal; Taylor and Francis; Web of Science. 4 Online Journals: Springer Nature - Nature Chemistry, Nature Materials, Nature Microbiology, Nature Physics Journals; Further, library has a rich collection of 2 lakhs e-books from various publishers

Some of the services provided by the Dr B R Ambedkar Central Library are as follows:

Information Desk: To provide information about Library and its collections and services.

Information Browsing Unit: Library provides a separate reading room for faculty members. Computers with scanning facilities have also been made available in the Reading Room for faculty members.

New Books Display: New Books purchased by the Library are displayed on every Monday. All these Books are kept for consultation at the Circulation Counter.

Digital Library Services: The library provides digital services for online resources accessible through IP authentication and remote access through single sign on facility. It also has a very interactive user oriented website (<http://www.jnu.ac.in/library>) for various library services, collection and information 24x7 anytime anywhere.

Helen Keller Unit:

In order to meet the special needs of the visually Challenged students of the University, a separate unit named Helen Keller is located at the Ground Floor. Eighteen desktops, One Braille printer with multilingual support and 12 scanners are available for digital delivery of information. All the desktops are installed with screen reading (JAWS) software to facilitate visually challenged scholars in their studies. All the students have been provided digital voice recorders. Laptops are also issued to the visually challenged researchers and students at UG, PG levels of the University. Dedicated staff is available for scanning the hard copy documents and books for Visually Impaired students.

Institutional Repository: Central Library, JNU is in the process of creating an Institutional Repository of faculty publications using Dspace. At present full text of the project International Migrations and Diaspora Studies (IMDS) are available at <http://lib.jnu.ac.in/sites/default/files/imds/imds.htm>.

Cyber Library: Cyber Library is located at the Ground Floor of Central Library with 144 Computers for the students and research scholars to access the subscribed online resources and search the catalogue of the Library.

Single Window Search: At present Central Library, JNU has provided single window access system to all e-resources available at Central Library. The discovery services can be accessed from JNU library home page as well as through remote access.

Online Press-Clippings Database: The press clippings collection consists of over 8 lacs newspaper articles on international and bilateral relations, political, economic, socio-cultural, environmental issues etc. which are readily accessible to the users through WEBOPAC.

Electronic Theses and Dissertations: Approximately 26,000 + digital copies of Theses and Dissertations are available for online access through the library OPAC. Further, approximately 5000+ Ph.D. theses have been submitted to INFLIBNET, Shodhganga and are accessible through the Shodhganga platform.

Other services:

- Access to CD-ROMs, books / journals and statistical data through Automation Unit.
- Overnight issue facilities of textbooks in all disciplines through textbook section.
- Inter library loan of books and Document Delivery Services from other libraries.
- Locker facility for JNU Researchers, Faculty and Visually & Physically Challenged users.
- Consultation facility for Research Scholars of other Universities/Institutions
- Orientation sessions, Author Workshops, Staff Development programmes, Research Methodology and Publication Ethics workshop for students, researchers, faculty members.

EXIM Bank Economics Library: The Exim Bank Economics Library, part of Dr B R Ambedkar Central Library has a special collection of 14267 Economics books and 2735 back volumes of 56 journals. Automated Library services, inter-library loan, reference and book lending facilities are provided to the users.

Archives on Contemporary History: The archives on contemporary history (ACH), located in 6th Floor of Dr B R Ambedkar Central Library is a unique collection of materials pertaining to the Indian Nationalist Movement, especially on the revolutionary trends in the National Movement. The materials preserved in the Archives on Contemporary History are rare and unique in nature and many of them are not available in any other library or Archives. The index for the documents preserved in the Archives is available at https://www.jnu.ac.in/sss/archive-index_list. It has digitized 7500 documents from its collections and made them available online.

There are other Libraries located at different Schools and Centres.

- i. School Of Arts & Aesthetics
- ii. Centre for Historical Studies Library.
- iii. Centre for Political Studies Library.
- iv. Centre for Law and Governance Library.
- v. School of Computer and System Sciences Library.
- vi. Academic Staff College Library.
- vii. SIS Reading Hall.

Please visit <http://lib.jnu.ac.in> for more information and updates.

VII. FELLOWSHIPS/SCHOLARSHIPS/ AWARDS

The details of Fellowships/Scholarships like UGC-CSIR Junior Research Fellowships, UGC Scholarships & Fellowships, Ayush fellowship, State Government fellowships, etc, operated by external agencies/other departments can be referred to by the interested candidates by accessing the website of the concerned departments.

Applications for internal Fellowships/Scholarships/ Awards will be invited from registered and eligible students as per the terms & conditions of the fellowships and subject to availability of funds, through a separate circular/notice.

VIII. LINGUISTIC EMPOWERMENT

Linguistic Empowerment Cell (LEC) is committed to empowerment and capacity building programs for students who need linguistic skills for their academic pursuits in JNU. LEC runs foundation courses in English for students who may not have had English as a medium of instruction prior to coming to JNU and who may find it difficult to grasp what is offered in the regular programs in their respective centres and schools. LEC also conducts courses for students who wish to learn academic writing skills. Learners can opt for the 8 to 10 am slot or the 4 to 6 pm slot depending on the timing of their regular programs. Foreign students from non-English speaking countries are encouraged to do these courses. Students are awarded certificates of proficiency after the completion of two successive semesters.

Intensive short term programs are conducted in the summer and winter break in order to address the specific concerns of language in academic writing for research students.

LEC organizes lessons in “Communication Skills in Hindi” for foreign to students as well, so as to enable them to integrate well in the social and cultural life on the campus. LEC also organizes basic courses in Sanskrit for beginners. In accordance with the principles of social justice and empowerment, JNU also organizes special classes twice a week in Indian Sign Language for students, staff, faculty and other JNU-ites, to empower them to communicate with the deaf. Participants are awarded special certificates after the end of the two semester long program.

For registration and queries regarding these courses please write to linguistic.e.c@gmail.com.

IX. HOSTEL FACILITIES

It is important to note that in view of the limited hostel accommodation, the candidates should clearly understand that the grant of admission to a full-time programme of study in the University

- a. Would not ensure allotment of hostel accommodation**
- b. Accommodation will be offered to the eligible applicant's subject to availability**
- c. Candidates admitted to Part-Time programmes of study are not eligible for hostel accommodation**
- d. No request for out of turn allotment of hostel on medical ground will be entertained.**

- 1 All selected students who need Hostel/Dormitory accommodation will be required to apply in the prescribed application form obtainable from the Office of the Dean of Students. Admission in the Hostel/Dormitory is in accordance with the Hostel Points and Rank in his/her respective category. **The last date for receipt of application form for hostel allotment will be the last date of admission.**
- 2 **The reservation, hostel allotment (Priority) and reservation/concession/exemption in hostel fee etc. to SC/ST/PWD/OBC (Non-creamy layer)/EWS are as per University rules.**
- 3 The criteria for allotment of hostel accommodation by the University is as under:

First Priority (P-I)

- a. Students admitted to full-time programs in the current year, who have passed their qualifying examinations from places outside Delhi and are not resident of Delhi except clause mentioned in P-II category and those who are admitted to a program at a level at which the student already has a degree or has pursued/taken admission in any institute/studying in JNU at the same level with hostel accommodation.
- b. Students who are not from NCT of Delhi but have passed their qualifying examinations from Delhi and stayed in recognized University/College hostel, subject to their furnishing documentary evidence from the Head of the Institution regarding the details of their stay.
- c. Students who have passed their qualifying examinations from Delhi by making their own private arrangement for accommodation, but at the same time do not have their family/official residence of parents in Delhi, provided they submit satisfactory proof such as address proof and other related documents, as approved by IHA which shows that they belong to other states and do not have any residential property in Delhi.

Second Priority (P-II)

- (a) Outstation students, who are admitted to a programme of study after passing their qualifying examination after a gap of 2 years but not more than 5 years before admission to JNU.
- (b) Outstation students, who are admitted to a programme of study at a level at which the student already has a degree or has pursued or has taken admission in any institute pursuing studies from an institution from outside Delhi or an institution from Delhi or from JNU (at the same level) with/without hostel accommodation except in the case of lateral entry in IInd year at graduate level course.

Explanation: - For all purpose “resident of Delhi” mentioned in Clause 2.1 of Hostel Manual means the resident of National Capital Territory (NCT) Delhi and “outstation” means outside NCT Delhi.

Third Priority (P III)

The applicants who do not come under Priority I and II may be considered under P III category.

P-III Category students are not eligible for hostel facilities as approved by the Executive Council vide Resulation No. 5.23 in its meeting held on 08.03.2021.

Students, who have already availed hostel facilities, are not eligible for the same in case of their admission to the same level of programme.

The Hostel applicants will not be allowed to change the address and other information furnished/documents submitted along with the application, during the current academic year except in the case of change in parents' official residence due to transfer/retirement.

(List of documents to be attached with the Hostel Form-- -----see Annexure)

4. **Hostel charges as applicable to be paid at the time of allotment of hostel/dormitory.**
5. **Hostel residents are expected to observe the rules and regulations prescribed for them as well as all the requirements of corporate life and the social norms that living together demands.**
6. **Failure to observe discipline or violation of rules may make a student liable to disciplinary action which may result in the withdrawal of hostel facilities.**

In case it is found at later stage that incorrect information has been furnished or some material facts have been concealed, the student is liable to eviction from the hostel besides such other action which the University may deem fit to take against him/her.

- Note:**
1. The above mentioned rules may be amended by the Competent Authority at any time.
 2. The hostel/dormitory/Second Roommate/Third Roommate will be allotted as per the rules of Hostel Manual applicable at the time of submission of application for hostel allotment and amended from time to time.
 3. The students residing in the hostel are abide by the rules and regulations of Hostel Manual.

ANNEXURE**DOCUMENTS TO BE ATTACHED WITH HOSTEL FORM**

1. Photocopy of the Admission Folio.
2. Copy of the subject Folio from the school/Centre.
3. Photocopy of **Passport/Voter ID/Aadhar Card/Domicile Certificate** (issued by the SDM/Tehsildar) – any of the **TWO** showing permanent address. The original document should be produced at the time of hostel allotment. **No other address proof will be entertained in this regard.**
4. Copy of Electricity Bill/Water Bill/House Tax Receipt/Paying Guest Receipt (any one) is mandatory for outstation students who were living or lived in private accommodation in Delhi during their studies.
5. Outstation Students whose parents are working in Delhi should submit a certificate from their parent's employer mentioning that they haven't been allotted any Residential accommodation in Delhi by the employer.
6. Those students who have more than one year Gap period but not above 5 years after qualifying examination, have to submit the migration certificate dully attested by the Admission Branch of JNU and work experience certificate from the employer, if any.
7. Outstation students who were staying in Delhi with their parents are transferred/retired should submit Transfer/Retirement order of parents with official resident vacating certificate from the employer.
8. Hostel resident certificate for those who are staying/stayed in college & other recognised hostels/Paying Guest accommodation.
9. Photocopies of the Anti Ragging affidavits.
10. Copies of Admission Offer Letter, Medical Insurance Certificate, Passport and Visa [Only for Foreign Nationals]
11. One recent colour passport size photograph.

X. UNIVERSITY HEALTH CENTRE

Location: University Health Centre (UHC) is located near the north gate of South West of Ganga Hostel.

Staff: Dean of Students is the Head of the Department of University Health Centre. The staff of the University Health Centre (UHC) comprises of CMO (SAG), I/C Health Centre, Senior Medical Officers, Part Time doctors for General OPD, Part time Specialists, a Part time Homoeopathic Physician, Staff Nurse, Pharmacists, a Senior Technical Assistant, Technical Assistant, Lab Technician and other supportive staff functions under the overall supervision and administrative control of the Chief Medical Officer (SAG), I/C Health Centre. University Health Centre also has staff for control of mosquito-borne-diseases.

JNU is an educational institute, has its own Health Centre with medical facilities. Students who wish to avail additional facilities are advised to obtain medical insurance cover or any other medical coverage at their own cost to meet expenses on hospitalization, consultation in OPD of any hospital, investigation etc.

OPD Services:

1. Doctors of the University Health Centre provide primary OPD facility. The student can just walk in for consultations and treatment for General OPD, Dental OPD and Homeopathy OPD.
2. Specialist: Consultations with the specialists in Internal Medicine, Psychiatry, ENT, Ophthalmology, Skin, Orthopedic, Gynecology, Cardiology, Pediatrics, General Surgery (consultation only) and Counseling Services are also available at the U.H.C. At present specialists O.P.D's, Dental O.P.D & Homeopathy O.P.D are suspended due to Covid-19 pandemic till further order.
3. Consultation facility with Part Time Clinical Psychologists is available in Health Centre during morning and evening shifts.
4. Prior online specialists OPD appointments can be taken by login to hcopd.jnu.ac.in. At present only appointment with Part Time Clinical Psychologist (Evening Shift) is functional.
5. Medicines are provided free of cost to students from the pharmacy of the Health Centre as per University rules through Govt. Medical Stores Depot and local purchase from approved chemists inside the campus.
6. Laboratory facility provides spectrum of routinely available Hematological, Biochemical and Microbiology tests. Blood sample collection timings are from 8.30 A.M – 11.30 A.M on all normal working days.
7. Referral services to public hospitals for specialized treatment/hospitalization for the students and other services which are not covered by the U.H.C.
8. Medical examinations of students for academic pursuits in the University.
9. Only wife and children of married students can avail of such medical facilities as are available at the Health Centre on payment of medical fees for the family. They are provided with medicines which are available in the Health Centre. The student may contact the Health Centre to get further information. In case of spouse of female student medical facility is provided up to the age 25 years or till they start earning, whichever may be earlier.
10. When the Health Centre is not open, all the patients are advised to go to government hospital or any other hospital. No reimbursement is permissible for students as per UGC norms.

Ambulance: - An Advanced Life Support Vehicle and a Patient Transport Vehicle are available at the Health Centre for 24 hrs. A doctor is also available at night from 9 P.M. to 8 A.M. with the ambulance. Mobile numbers to contact the ambulance in emergency are also printed on the O.P.D cards/Medical Booklets.

Emergency Ambulance mobile numbers: 9971728866 & 9971728877

Services not covered:

1. Dental services like making of denture, root canal treatment etc.
2. Medical examination/certifications for employment outside JNU, Insurance, legal and other non-academic purpose.
3. Laboratory tests and X-ray for purpose other than diagnosis and treatment.

Timing: The University Health Centre functions from 8 a.m. to 2 p.m. and 3 p.m. to 9 p.m. on all working days from Monday to Saturday. In the Evening the part time doctors provide services and essential medicines are provided to meet the immediate needs of the students. Holi, Diwali, Sundays, Election Day in Delhi and National Holidays presently are observed as closed holidays. Health Centre functions between 8 a.m. to 2 p.m. on gazetted holidays.

Health Service Fee: Charged as per University Rules.

Medical Facilities for Foreign Students: Foreign Students are extended medical facilities at par with the Indian Students.

For New Admission:

- (i) **For Foreign Students:** Minimum Rupees One Lakh insurance cover will be mandatory for Foreign Students. They will be required to submit the copy of policy at the time of admission or as per the University Rules from time to time.

- (ii) **Indian Students:** Indian Students who are admitted to JNU in future are advised to take insurance cover of RS. One Lakh at least or more if desired.
All these records/information shall be maintained in the office of Dean of Students.

For already Registered Foreign Students of JNU: Foreign Students who are already registered in JNU should also get a medical **insurance** cover and submit the relevant documents latest by failing which they will not be allowed to register in the following semester i.e. winter semester or it may be as per University Rules from time to time.

Health Education: Health Education is an integral part of University Health Service.

General Policy Regarding Confidentiality: Personal and medical histories of the patients are treated with utmost confidentiality. Notification to the parents and others is generally considered to be the responsibility of the students unless the condition of the student is serious or student is unable to assume responsibility for informing parents. OPD Card/Health Booklets with details of prescription remains with the patient/students.

Health Advisory Committee: The committee assesses, make recommendations for development of services for the benefit of students.

E-Mail Id's of permanent doctors of the Health Centre:

1. Dr. Gautam Patra, C.M.O (SAG), I/C Health Centre – gautampatra@mail.jnu.ac.in
2. Dr. Fouzia Firdous Ozair, Sr. Medical Officer – fouzia@mail.jnu.ac.in
3. Dr. Praveen Kumar Bhati, Sr. Medical Officer – pkbhati@mail.jnu.ac.in

Important Mobile/Telephone Numbers:

Official/Services	Direct Telephone	EPABX Number
Ambulance, Health Centre	9971728866 & 9971728877	26704700
North Gate/Main Gate Security Department	26742878	26704752
Security Control room	011-26704029 (9 A.M. to 5 P.M.) 011-26704752, 8130573744, 9312437374 (24x7)	
Health Centre (8 A.M to 2 P.M & 3 P.M to 9 P.M) (Health Centre remain closed on Sundays, National Holidays, Holi, Diwali, Election Day in Delhi) On gazetted holidays Health Centre functions from 8 A.M to 2.00 P.M	26741636 & 26742613	

XI. GAMES AND SPORTS

A student, at the University level is aware of the importance of physical activities and organised Sports and Games programmes which should be combined with his/ her academic pursuits. JNU provides the basic facilities for such activities in terms of the sport fields/courts and also playing equipment, both for practice and competitions.

The University's Sports Office is located in the Sports Stadium, and is being looked after by one full-time Asst. Director of Physical Education. Presently the following games are organised under the framework of a club, with elected Convener. Athletics, Badminton, Basketball, Cricket, Chess, Volleyball, Mountaineering & Trekking, Weightlifting, Power-Lifting & Body Building, Taekwondo, Football, Tennis, Table-Tennis & Yoga. The election of the Convenor(s) is normally done in September each year. Annual competitions in all games are conducted by the Club with the help of the Sports Office.

Each Hostel has separate facilities for recreation which includes outdoor courts for Basketball, Badminton and Volleyball as also facilities for indoor games like Table - Tennis, Chess, Carrom, etc. Each hostel gets an annual grant towards recreation and is spent by the Hostel Committee in consultation with Warden (Recreation).

The Sports Office also runs a Yoga Centre. Yoga Classes are held both in the morning and evening. In addition, workshops, special lectures, demonstrations and short courses are also conducted throughout the year.

XII. CULTURAL ACTIVITIES

Cultural activities among the student community on the campus are promoted through various cultural clubs namely: Debating, Drama, Film, Fine Arts, Literary, Music and Dance, Nature and Wild Life, Photography, and UNESCO.

Each club functions under the supervision of the elected student's conveners and the members of their executive committee who are elected every year by the student members of the respective clubs.

The University has a Culture Committee headed by a Cultural Coordinator to promote the functioning of the clubs and organizing of various cultural activities from time to time.

Only a nominal annual fee is charged to enable a large number of students to become members of clubs that they are interested in. A student can hold membership of more than one club.

XIII. NATIONAL CADET CORPS ACTIVITIES

JNU provides the basic facilities for National Cadet Corps (NCC) and its physical and adventure activities. The University's NCC Offices (boys and girls) are located in the Student Activity Centre and Store in Sports Stadium, and are being looked after by two full-time Associate National Cadet Corps Officers for boys and girls each.

Presently, JNU NCC is attached to two NCC units/battalions, namely, 2 Delhi Arty Bty NCC (Total Strength 108 Cadets) for boys and 3 DGBN(G) NCC (Total Strength 54 Cadets) for girls.

XIV. INTERNAL COMPLAINTS COMMITTEE (ICC)

The University has duly constituted Internal Complaints Committee (ICC) in compliance of Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 and the UGC (Prevention, Prohibition and Redressal of Sexual Harassment of Women Employees and Students in Higher Educational Institutions) Regulations, 2015. For further information Please visit : <https://jnu.ac.in/icc>

XV. ANTI RAGGING POLICY OF THE UNIVERSITY

In order to prohibit, prevent and eliminate the scourge of ragging, the University has implemented the regulations notified by the University Grants Commission on curbing the Menace of Ragging in Higher Educational Institutions, 2009 in view of the directions of the Hon'ble Supreme Court of India. The students found guilty of ragging are awarded punishment as prescribed in the UGC regulations. All candidates selected for admission will be required to submit an Affidavit from their parents.

UGC regulations on curbing the menace of ragging in higher educational institutions, 2009:

Excerpts from the UGC regulation (CPP- II) dated 17th June, 2009 (Full text is available in every hostel, Dean of Students office and JNU Website)

In exercise of the powers conferred by Clause (g) of sub-section (1) of Section 26 of the University Grants Commission Act, 1956, the University Grants Commission hereby makes the following Regulations, namely;

1.1 These regulations shall be called the "UGC regulations on curbing the Menace of Ragging in Higher Educational Institutions, 2009".

2. Objectives: -

To prohibit any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other students, or indulging in rowdy or in disciplined activities by any student or students which

causes or is likely to cause annoyance, hardship or psychological harm, or to raise fear or apprehension thereof in any fresher or any other student or asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other students, with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student; '3nd thereby, to eliminate ragging in all its forms from universities, deemed universities and other higher educational institutions in the country by prohibiting it under these Regulations, preventing its occurrence and punishing those who indulge in ragging as provided for in these Regulations and the appropriate law in force.

2. What constitutes Ragging: - Ragging constitutes one or more of any of the following acts:

- a. any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student;
- b. indulging in rowdy or in disciplined activities by any student or students which causes or is likely to cause annoyance, hardship, physical or psychological harm or to raise fear or apprehension thereof in any fresher or any other student;
- c. asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student;
- d. act by a senior student that prevents, disrupts or disturbs the regular academic activity of any other student or a fresher;
- e. exploiting the services of a fresher or any other student for completing the academic tasks assigned to an individual or a group of students.
- f. any act of financial extortion or forceful expenditure burden put on a fresher or any other student by students;
- g. any act of physical abuse including all variants of it: sexual abuse, homosexual assaults, stripping, forcing obscene and lewd acts, gestures, causing bodily harm or any other danger to health or person;
- h. any act or abuse by spoken words, emails, post, public insults which would also include deriving perverted pleasure, vicarious or sadistic thrill from actively or passively participating in the discomfiture to fresher or any other student;
- i. any act that affects the mental health and self-confidence of a fresher or any other student with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student. - .

6.1 (g) A student seeking admission to a hostel forming part of the institution, or seeking to reside in any temporary premises not forming part of the institution, including a private commercially managed lodge or hostel, shall have to submit additional affidavits countersigned by his/her parents/guardians in the form prescribed in Annexure I and Annexure II to these Regulations respectively along with his/her application.

6.2 (e) The institution shall, on the arrival of senior students after the first week or after the second week, as the case may be, schedule orientation programmes as follows, namely;

- (i) Joint sensitization programme and counseling of both fresher and senior students by a professional counsellor, referred to in clause (i) of Regulation 6.1 of these Regulations;
- (ii) joint orientation programme of freshers and seniors to be addressed by the Head of Institution and the anti-ragging committee; (iii) organization on a large scale of cultural, sports and other activities to provide a platform for the freshers and seniors to interact in the presence of faculty members; (iv) in the hostel, the warden should address all students; and may request two junior colleagues from the college faculty to assist the warden by becoming resident tutors for a temporary duration; (v) as far as possible faculty members should dine with the hostel resident in their respective hostels to instill a feeling of confidence among the freshers. 6.2 (O) Every student at the time of his/her registration shall inform the institution about his/her place of residence while pursuing the course of study, and in case the student has not decided his/her place of residence or intends to change the same, the details of his place of residence shall be provided immediately on deciding the same; and specifically in regard to a private commercially managed lodge or hostel where he/she has taken up residence.

4.2 (p) The Head of the institution shall, on the basis of the information provided by the student under clause (O) of Regulation 6.2, apportion sectors to be assigned to members of the faculty, so that such member of faculty can maintain vigil and report any incident of ragging outside the campus or en route while commuting to the institution using any means of transportation of students, whether public or private.

4.3 Every institution shall constitute the following bodies; namely

- a. Every institution shall constitute a committee to be known as the Anti Ragging Committee to be nominated and headed by the (i) Head of the institution, and (ii) consisting of representatives of civil and (iii) police administration, (iv) local media, (v) Non government Organizations involved in youth activities, representatives of faculty members, (vi) representatives of parents, (vii) representatives of students belonging to the freshers' (ix) category as well as senior students, (x) non-teaching staff; and shall have a diverse mix of membership in terms of levels as well as gender.

- b. Every institution shall also constitute a smaller body to be known as the Anti-Ragging Squad to be nominated by the Head of the Institution with such representation as may be considered necessary for maintaining vigil, oversight and patrolling functions and shall remain mobile, alert and active at all time Provided that the Anti-Ragging Squad shall have representation of various members of the campus community and shall have no outside representation.
- c. It shall be the duty of the Anti-Ragging Squad to be called upon to make surprise raids on hostels, and other places vulnerable to incidents of, and having the potential of, ragging shall be empowered to inspect such places.
- d. It shall also be the duty of the Anti-Ragging Squad to conduct an on spot enquiry into any incident of ragging referred to it by the Head of the institution or any member of the faculty or any member of the staff or any student or any parent or guardian or any employee of a service provider or by any other person, as the case may be; and the enquiry report along with recommendations shall be submitted to the Anti-Ragging Committee for action under clause (a) of Regulation 9.1.

Provided that the Anti-Ragging Squad shall conduct such enquiry observing a fair and transparent procedure and the principles of natural justice and after giving adequate opportunity to the student or students accused of ragging and other witnesses to place before it the facts, documents and views concerning the incident of ragging, and considering such other relevant information as may be required.

7. Action to be taken by the Head of the institution:- On receipt of the recommendation of the Anti- Ragging Squad or on receipt of any information concerning any reported incident of ragging, the Head of institution shall immediately determine if a case under the penal laws is made out and if so, either on his own or through a member of the Anti-Ragging Committee authorized by him in this behalf, proceed to file a first Information Report (FIR), within twenty four hours of receipt of such information or recommendation, with the police and local authorities, under the appropriate penal provisions relating to one or more of the following namely;
 - i. Abetment to ragging;
 - ii. Criminal conspiracy to rag;
 - iii. Unlawful assembly and rioting while ragging;
 - iv. Public nuisance created during ragging;
 - v. Violation of decency and morals through ragging;
 - vi. Injury to body, causing hurt or grievous hurt;
 - vii. Wrongful restraint;
 - viii. Wrongful confinement; ix. Use of criminal force;
 - x. Assault as well as sexual offences or unnatural offences;
 - xi. Extortion;
 - xii. Criminal trespass;
 - xiii. Offences against property;
 - xiv. Criminal intimidation;
 - xv. Attempts to commit any or all of the above mentioned offences against the victim(s);
 - xvi. Threat to commit any or all of the above mentioned offences against the victim(s);
 - xvii. Physical or psychological humiliation;
 - xviii. All other offences following from the definition of "Ragging".

Provided that the Head of the institution shall forthwith report the occurrence of the incident of ragging to the District Level Anti - Ragging Committee and the Nodal officer of the affiliating University, if the institution is an affiliated institution.

Provided further that the institution shall also continue with its own enquiry initiated under clause 9 of these Regulations and other measures without ""waiting for action on the part of the police/local authorities and such remedial action shall be initiated and completed immediately and in no case later than a period of seven days of the reported occurrence of the incident of ragging.

8. Administrative action in the event of ragging: -

- 8.1 The institution shall punish a student found guilty of ragging after following the procedure and in the manner prescribed here in under:
 - (a) The Anti-Ragging Committee of the institution shall take an appropriate decision, in regard to punishment or otherwise, depending on the facts of each incident of ragging and nature and gravity of the incident of ragging established in the recommendations of the Anti- Ragging Squad. (b) The Anti Ragging Committee may, depending on the nature and gravity of the guilt established by the Anti-Ragging Squad, award, to those found guilty, one or more of the following punishments, namely;
 - I. Suspension from attending classes and academic privileges.
 - II. Withholding! with drawing scholarship / fellowship and other benefits.
 - III. Debarring from appearing in any test/examination or other evaluation process.

- IV. Withholding results.
- V. Debarring from representing the institution in any regional, national or international meet, tournament, youth festival, etc.
- VI. Suspension/expulsion from the hostel. vii. Cancellation of admission.
- VII. Rustication from the institution for period ranging from one to four semester.
- VIII. Expulsion from the institution and consequent debarring from admission to any other institution for a specified period.
- IX. Provided that where the persons committing or abetting the act of ragging are not identified, the institution shall resort to collective punishment.

(C) An appeal against the order of punishment by the Anti-Ragging Committee shall lie,

- (i) In case of an order of an institution, affiliated to or constituent part, of a university, to the Vice-Chancellor of the University;
- (ii) In case of an order of a university, to its Chancellor.
- (iii) In case of an institution of national importance created by an Act of Parliament, to the Chairman or Chancellor of the institution, as the case may be.

AFFIDAVIT BY THE STUDENT

(on a Non Judicial Stamp Paper of Rs.10/-)

I, _____ (full name of student with admission/registration/enrolment number) s/o d/o Mr./Mrs./Ms. _____, having been admitted to **JAWAHARLAL NEHRU UNIVERSITY, NEW DELHI** have received a copy of the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the "Regulations"), carefully read and fully understood the provisions contained in the said Regulations.

(i) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.

(ii) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against me in case I am found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.

(iii) I hereby solemnly aver and undertake that

I will not indulge in any behavior or act that may be constituted as ragging under clause 3 of the Regulations.

I will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.

(iv) I hereby affirm that, if found guilty of ragging, I am liable for punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against me under any penal law or any law for the time being in force.

(v) I hereby declare that I have not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, I am aware that my admission is liable to be cancelled.

Declared this _____ day of _____ month of _____ year.

Signature of deponent
Name: _____
Centre /School _____

VERIFICATION

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at _____ on this the _____ of _____,
(place) (day) (month) (year)

Signature of deponent

Solemnly affirmed and signed in my presence on this the _____ of _____, _____ after
(day) (month) (year)
reading the contents of this affidavit.

OATH COMMISSIONER

AFFIDAVIT BY PARENT/GUARDIAN

(on a Non Judicial Stamp Paper of Rs.10/-)

I, Mr./Mrs./Ms. _____ (full name of parent/guardian)
 father/mother/guardian of, _____ (full name of student with admission/ registration/
 enrolment number), having been admitted to _____ (name of the institution), have received a copy
 of the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the
 "Regulations"), carefully read and fully understood the provisions contained in the said Regulations.

- 1) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.
- 2) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against my ward in case he/she is found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.
- 3) I hereby solemnly aver and undertake that
 - a. My ward will not indulge in any behavior or act that may be constituted as ragging under clause 3 of the Regulations.
 - b. My ward will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulation.
- 4) I hereby affirm that, if found guilty of ragging, my ward is liable for punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against my ward under any penal law or any law for the time being in force.
- 5) I hereby declare that my ward has not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, the admission of my ward is liable to be cancelled.

Declared this _____ day of _____ month of _____ year.

 Signature of deponent
 Name:
 Address:
 Telephone/Mobile No.:

VERIFICATION

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at (place) _____ on this the (day) _____ of (month) _____, (year) _____.

 Signature of deponent

Solemnly affirmed and signed in my presence on this the (day) _____ of (month) _____, (year) _____

after reading the contents of this affidavit

OATH COMMISSIONER

XVI. RULES OF DISCIPLINE AND PROPER CONDUCT OF STUDENTS OF JNU

Preamble

Whereas by virtue of section 5(10)* of the JNU Act read with Statute 32(1)** of the Statutes of the University, the Vice-Chancellor has been vested with all the powers relating to discipline and disciplinary action in relation to students and whereas Statute 32(5)*** empower the University to frame detailed rules of discipline and proper conduct; and now in pursuance of the same the Vice-Chancellor has approved the following rules of discipline and proper conduct among the students of the University.

1. Short title and Commencement

- i) These Rules shall be called “The JNU Students’ Discipline and Conduct Rules”, hereafter referred to as the “Rules”.
- ii) These Rules shall come into force with effect from the date of notification****.

2. Application of Rules

- i) These Rules shall apply to all students of the University (including part-time students) whether admitted prior to the commencement of these Rules or after the commencement of these Rule.
- ii) Any breach of discipline and conduct committed by a student inside or outside the JNU Campus shall fall under the purview of these Rules.
- iii) Without prejudice to the generality of the power to enforce discipline under Statue 32 of the Statutes of the University, the acts mentioned in Rules 3 shall amount to acts of misconduct or indiscipline or both.

* *To regulate and enforce discipline among students and employees of the university and to take such disciplinary measures in this regards as may be deemed necessary.*

** *All powers relating to discipline and disciplinary action in relation to students shall vest in the Vice-Chancellor.*

*** *Without prejudice to the powers of the Vice-Chancellor and the Chief Proctor as aforesaid, detailed rules of discipline and proper conduct shall be framed. The Principals or, as the case may be, the Heads of the colleges, Institutions, Departments, Special Centres or Specialised Laboratories may frame such supplementary rules as they deemed necessary for the aforesaid purposes. Every student shall provide himself with a copy of these rules.*

**** *These Rule shall come into force w.e.f. 19th June 2000.*

3. Categories of misconduct and indiscipline Category-I

- i) All acts of violence and all forms of coercion such as gheraos, sit-ins or any variation of the same which disrupt the normal academic and administrative functioning of the University and or any act which incites or leads to violence.
- ii) Gheraos, laying siege or staging demonstrations around the residence of any member of the University Community or any other form of coercion, intimidation or disturbance of right to privacy of the residents of the campus.
- iii) Sexual harassment of any kind which shall also include: unwelcome sexual proposition/ advancements, sexually graphic comments of a body unwelcome touching, patting pinching or leering of parts of the body or persistent offensive or unwelcome sexual jokes and or comments.

Category-II

- iv) Committing forgery, tampering with the Identity Card or University records, impersonation, misusing University property (movable or immovable), documents and records, tearing of pages of, defacing, burning or in any way destroying the books, journals, magazines and any material of library or unauthorised photocopying or possession of library books, journals, magazines or any other material.
- v) Hunger strikes, dharnas, group bargaining and any other form of protest by blocking entrance or exit of any of the academic and/or administrative complexes or disrupting the movements of any member of the University Community.

- vi) Furnishing false certificates or false information in any manner to the University.
- vii) Any act of moral turpitude.
- viii) Eve-teasing or disrespectful behaviour or any misbehaviour with a girl student, women staff member/ visitor.
- ix) Arousing communal caste or regional feelings or creating disharmony among students.
- x) Use of abusive, defamatory, derogatory or intimidatory language against any member of the University Community.
- xi) Causing or colluding in the unauthorised entry of any person into the Campus or in the unauthorised occupation of any portion of the University premises, including halls or residence by any person.
- xii) Unauthorised occupation of the hostel rooms or unauthorised acquisition and use of University furniture in one's hostel room or elsewhere.
- xiii) Indulging in acts of gambling in the University premises.
- xiv) Consuming or possessing dangerous drugs or other intoxicants in the University premises.
- xv) Damaging or defacing, in any form any property of the University or the property of any member of the University community.
- xvi) Not disclosing one's identity when asked to do so by a faculty member or employee of the University who is authorised to ask for such identity.
- xvii) Improper behaviour while on tour or excursion.
- xviii) Coercing the medical staff to render medical assistance to persons not entitled for the same or any other disorderly behaviour in the Health Centre.
- xix) Blockade or forceful prevention of any normal movement of traffic, violation of security safety rules notified by the University.
- xx) Any other offence under the law of land.
- xxi) Ragging in any form
- xxii) Accommodating unauthorized guests or other persons in the halls of residence.
- xxiii) Engaging in any attempt at wrongful confinement of any member of the faculty, staff, student or anyone camping inside the Campus.
- xxiv) Any intimidation of or insulting behavior towards a student, staff or faculty or any other person.
- xxv) Any other act which may be considered by the V.C. or any other competent authority to be an act of violation of discipline and conduct.

4. Punishment

The competent authority may impose any of the following punishments on any student found guilty of any of the acts of indiscipline or misconduct mentioned in Category-I or Category-II as the case may be, in Rule 3.

Category I:

- 1) Cancellation of admission or withdrawal of degree or denial of registration for a specified period.
- 2) Rustication upto four semester period and/or declaring any part or the entire JNU Campus out of bounds.
- 3) Expulsion

Category II

- 1) Admonition/Reprimand
- 2) Fine upto Rs. 20,000/-

- 3) Recovery of any kind, such as scholarship/fellowship, any dues, cost of damages, etc.
- 4) Withdrawal of any or all facilities available to a student as per, JNU Rules (such as Scholarship/Fellowship, hostel etc)
- 5) Stoppage of any or all academic processes.
- 6) Declaring any Halls of Residence, premises, building or the entire JNU Campus out of bounds to any students.
- 7) Rustication upto two semesters.

5. General

- 1) No punishment shall ordinarily be imposed on a student unless he/she is found guilty of the offence for which he/she has been charged by a proctorial or any other inquiry after following the normal procedure and providing due opportunity to the student charged for the offence to defend himself.
- 2) In case the Vice-Chancellor or any competent authority is of the opinion that on the basis of the available material and evidence on record a prima facie case exists against a student he may order suspension of the student including withdrawal of any or all facilities available to a bona fide student pending proctorial or any other inquiry.
- 3) Notwithstanding any punishment mentioned in Rule 4, the Vice-Chancellor may keeping in view the gravity/nature of misconduct/act of indiscipline, the manner and the circumstances in which the misconduct/indiscipline has been committed award a punishment in excess of or less than or other than what has been mentioned thereon for reasons to be recorded.

6. Interpretation

In case any dispute arises with regard to the interpretation of any of these Rules, the matter shall be referred to the Vice-Chancellor, whose decision thereon shall be final.

XVII. FEE AND MODE OF PAYMENT

Candidates selected for various programmes of study will be required to pay the following fees:

“A” Indian Nationals

	Fee Component	Programme	
		Ph.D.	Part-Time
1	Tuition Fee (Annual)	Rs. 240.00***	Rs.120.00
2	Sports Fee (Annual)	Rs.16.50	Rs.16.50
3	Literary & Cultural Fee (Annual)	Rs.16.50	Rs.16.50
4	Library Fee (Annual)	Rs.6.00	Rs.6.00
5	Medical fee (Annual)	Rs.9.00	----
6	Medical Booklet	Rs.12.00	----
7	Students Aid Fund (Annual)	Rs.4.50	----
8	*Admission Fee	Rs.5.00	Rs.5.00
9	*Enrolment Fee	Rs.5.00	Rs.5.00
10	*Security Deposit (Refundable)	Rs.40.00	Rs.40.00
11	Identity Card Folder	Rs.10.00	Rs.10.00
12	Student Hostel and General Information Guide	Rs.15.00	----
13	National Service Scheme (NSS)	Rs.20.00	----

The fees are subject to revision

**To be paid at the time of Enrolment in the University.*

****To be realised in two instalments.*

Students shall deposit tuition fee:

- (i) First Instalment at the time of admission
Second instalment at the time of registration in the Winter Semester i.e. January.
- (ii) Annual Fees shall be paid at the commencement of each academic year

• In the event of student being enrolled simultaneously for a full -time course and one part-time course, he will be charged, in addition to all the fees and other charges for the full-time course, only the tuition fee in respect of part-time course.

• If a student does not pay the fees on time, a fine shall be levied as per rules of the University.

• The Tibetan students shall be charged fees at par with Indian students.

“B” Foreign Nationals

For Ph.D., M.Tech., MPH, M.A., M.Sc., MCA, B.A.(Hons.), B.Sc.-M.Sc. integrated programme and Part-Time Programmes of study:

- (i) Tuition Fee:
 - (a) @ US \$1906 per semester for courses in science disciplines;
 - (b) @ US \$1271 per semester for courses in humanities and social sciences;
- (ii) Incidental charges: @ US \$ 254 per semester will be charged from both the above categories.

Note:

- a. Name of the defaulter, which shall be put up on the Notice Board, shall be removed from the rolls of the University.
- b. No request for fee waiver will be considered.
- c. GST charges, as applicable will be payable over the above stated fees

“C” Fee structure for the Ph.D. Programme in Management (ABVSME):

The tuition fee for **Indian students** for Ph.D. programme is Rs.50,000/- per semester.

The Tibetan students shall be charged fees at par with Indian students.

Tuition Fee for the **Foreign Nationals** will be US \$4,000 (USD Four Thousand) per Semester. For the SAARC Nationals the Tuition Fee will be US \$2,000 (USD Two Thousand) per Semester.

XVIII. CERTIFICATES AND OTHER DOCUMENTS REQUIRED AT THE TIME OF VIVA VOCE AND ADMISSION

1. **Certificates and documents required to be submitted by candidates for admission to Ph.D. at the time of viva-voce examination.**
 - (i) Testimonials from two persons one of whom should be a former teacher of the candidate;
 - (ii) A complete list of subjects/papers taken by the candidate for the certificates/degrees mentioned in Sl. No. 2;
 - (iii) A copy of at least one of the published papers of the candidate, if any, which he/she considers to be the most representative of his/her intellectual interest and ability.
 - (iv) A brief note (one copy) stating the candidate's area of specialised interest of research, if any, and his future professional goals, and such other additional information that may help his/her selection to the programme of study.
 - (v) A research proposal has to be submitted by the candidate at the time of viva-voce.
 - (vi) Foreign National candidates are required to submit statement of purpose (SoP) for Ph.D. programme.

2. **Certificates and documents required to be submitted by all candidates selected for admission to various programmes of study at the time of admission/registration.**
 - (i) Enrolment Form
 - (ii) Central Library Application Form
 - (iii) Five copies of recent passport size photographs
 - (iv) Two sets of self-attested copies of the Matriculation, Higher secondary, Pre-University or Indian School Certificate or Senior School Certificate (10+2), or an equivalent examination certificate showing the age/date of birth of the candidate.
 - (v) A Character Certificate from the Head of the Institution last attended
 - (vi) Two sets of self-attested copies of the statement of marks obtained by the candidate and passing certificate/degree of Senior School, Bachelor's Degree/Master's Degree examination etc; or their equivalent examination
 - (vii) **For SC/ST candidates:** Two self-attested copies of SC/ ST certificate in the prescribed format in support of claim for admission against reserved quota. Candidates should bring original caste/ category certificate at the time of admission/ registration (Format is as given in Page No.65).
 - (viii) **For OBC candidates:** Two self-attested copies of OBC certificate along with recently issued OBC Non-creamy layer certificate. The validity of the non-creamy layer certificate shall be for the financial year 2021-22. Candidates should bring original caste/ category certificate at the time of admission/ registration (Format is as given in Page No. 66-67).
 - (ix) **For PwD candidates:** Two copies of Disability certificate in the prescribed format issued by the Competent Medical Authority indicating the nature and extent (including percentage) of Physical Disability in support of their claim for admission against PWD quota. Candidate should bring original Disability as per Disability Act 2016 at the time of admission/ registration (Form No. V, VI and VII as given in Page No. 68-70).
 - (x) **For EWS candidates:** Two copies of the Income and asset certificate to be certified by an officer not below the rank of Tehsildar in the States/UTs in the prescribed format as given in Page No. 64
 - (xi) Migration Certificate (in original) from the Head of the Institution/University last attended:
 - a) All those candidates who have passed their qualifying examination prior to 2022 must produce the Migration Certificate from the University from where they have passed their qualifying examination at the time of admission/registration failing which they will not be granted admission.
 - b) Candidates who have passed their qualifying examination in 2022 and are not in a position to submit the Migration Certificate at the time of admission, should submit the same as early thereafter as possible, but not

later than 30th October, 2022 failing which the University reserves the right to cancel their admission.

- (xii) Two Anti-Ragging Affidavits (one to be signed by the candidate and the other to be signed by the parent/guardian of the candidate) on non-judicial Stamp Paper of Rs.10/- each as per the given format (ANNEXURE) duly attested by a Notary Public is required to be submitted at the time of registration. Candidate may retain one copy each of the Anti-Ragging Affidavit for submitting at IHA (Inter Hall Administration) Counter (For Anti-Ragging Affidavits format please see section XIX of the E-Prospectus).
- (xiii) Candidates pursuing their studies with some other University/Institution are required to submit discontinuation certificate signed by appropriate authority from their respective University/Institution at the time of registration/admission, failing which admission shall not be granted. They are also required to submit the Migration Certificate subsequently within the stipulated time.
- (xiv) Candidate submitting the internet downloaded mark sheets are advised to submit/produce the final mark sheet with due authentication/signatures of Competent Authority of their respective university/institution.
- (xv) The admission of candidates who have passed their qualifying examination from a Foreign University will be subject to their qualification being found equivalent to the qualifications prescribed by the University.
- (xvi) The candidates, enjoying employed status and selected for admission to any programme of study in the University, are required to produce **LEAVE SANCTION ORDER/RELIEVING ORDER AT THE TIME OF ADMISSION/REGISTRATION** from their employer for the duration of the programme permitting them to pursue their studies at the University, failing which the offer of admission shall stand withdrawn. In case of resignation, the candidates are required to submit Relieving Order from their employer at the time of admission/registration.
- (xvii) Online payment while filling up the pre-enrolment portal for accepting the offer of admission:

Ph.D.,	Rs. 280.00*
Ph.D. in Management	Rs. 50000/- per semester
PGD	Rs. 10,159.50*
Master/Under Graduate	Rs. 268.00*
Part Time	Rs. 219.00*

* Plus GST, as applicable

- (xviii) Following documents will be submitted by the candidate (in original) at the Admission Counter in a separate envelope while taking admission/registration:
 - a) Provisional Certificate of the qualifying examination,
 - b) Migration certificate
 - c) Character Certificate
 - d) Anti-ragging Affidavits
 - e) Discontinuation certificate
- (xix) All the selected candidates have to upload the necessary certificates in the pre-enrolment portal while accepting the offer of admission.

Important: The candidates, will be allowed to register only IN PERSON. No request for registration other than in person shall be accepted. The candidates are also required to produce all originals of the above certificates/documents for verification at the time of registration/admission. In the absence of any of the original certificates/documents, registration/admission shall not be allowed.

XIX. ADMISSION PROCEDURE FOR FOREIGN STUDENTS

Every year foreign nationals are admitted to various programmes of study under the following categories: -

- (a) Self-financing Students
 - i) through Entrance Examination and/or viva voce
 - ii) through 'In Absentia'
- (b) Under the Cultural Exchange Fellowship Programme of Govt. of India.
- (c) As Casual Students to audit/credit the courses (not leading to award of any degree)

Foreign nationals seeking admission in any of the categories under (a) and (b) above will have to satisfy the minimum eligibility criteria for admission to the various programmes of study as prescribed by the University.

(a) SELF FINANCING STUDENTS

(I) THROUGH ENTRANCE EXAMINATION AND/OR VIVA-VOCE: (For those foreign national who are in India)

All Foreign Nationals present in India will be required to appear in the entrance examination and/or viva voce subject to their fulfilling minimum eligibility requirement as prescribed for Indian students subject to equivalence of their qualification and production of Student Visa/Research Visa, as the case may be. The candidate has to apply online for the Entrance Examination/viva-voce.

(II) THROUGH 'IN-ABSENTIA' CATEGORY:

Foreign Nationals who are applying from their respective countries will be considered 'In Absentia' and there is a separate Application Form for them, which can be downloaded from the official website of JNU. They are required to send Application Form (alongwith the copies of the certificates etc. on the basis of which admission is sought by them) through post to Section Officer (Admission-II), Room No. 20, Administrative Block, Jawaharlal Nehru University, New Delhi - 110067. A Bank Draft of US \$42 (including GST) drawn in favour of **JAWAHARLAL NEHRU UNIVERSITY** payable at **NEW DELHI** is to be enclosed with the filled in downloaded Application Form towards the processing fee of application form.

Candidates already in India during entrance examination and/or viva voce will not be considered for admission under in absentia/under Cultural Exchange programme of Government of India and they will have to go through the process of entrance examination and/or viva voce for admission to various programmes of study.

(b) UNDER CULTURAL EXCHANGE PROGRAMME OF GOVERNMENT OF INDIA:

The students seeking admission under the Cultural Exchange Fellowship Programme of Government of India are required to approach the Indian Council for Cultural Relations, (ICCR), Azad Bhavan, I.P State, New Delhi-110001, India. In the event of their selection, the Council will be informed about their selection.

(c) CASUAL STUDENTS TO AUDIT/CREDIT COURSE(S):

Foreign Nationals may join the University for a semester or two to audit/credit the course(s) in any of the Centre/Schools of Study. If admission is given for auditing, Certificate of participation will be issued by the faculty Incharge of the course and if admission is given for credit, End-Semester Grade Sheet will be issued by the University, subject to the condition that they will be attending the semester classes and appearing in the End-Semester Examination.

Note: The admission of Foreign students for Ph.D. programme may be considered in compliance with UGC 2016 Regulations regarding number of research scholars faculty (i.e. Professor/Associate Professor/Assistant Professor) can supervise. Foreign students shall be offered seats only if seats are left vacant in any discipline after being offered to Indian Candidates who have appeared in JNUEE – 2022-23.

SELECTION

In the event of their selection, candidates will be informed about their selection and their admission will be subject to the following

conditions: -

1. Equivalence of their qualifications as prescribed by the University for various programmes of study.
2. Production of Student-Visa/Research Visa (as the case may be) in accordance with the revised visa policy of Government of India as also a xerox copy of their Passport together with the original documents for verification.
3. Medical-cum-Fitness Certificate
4. Insurance of Rs.1.00 lakh (minimum)

For any other information, please contact:

Shri Jagdish Singh,
Deputy Registrar (Admissions),
Administrative Block,
Jawaharlal Nehru University,
New Delhi – 110067
Phone no.: 91-11-26704047
dr_admissions@mail.jnu.ac.in

Shri Vinod Kumar
Section Officer (Admission-II) Room No.20
Administrative Block, Jawaharlal Nehru University,
New Delhi - 110067
Phone Nos.: 91-11-26704022 & 26738719
E-mail: admission_foreign@mail.jnu.ac.in
Fax Nos.: 91-11-26742692, 26742898

XX. INTAKE FOR THE YEAR 2022-23
--

Ph.D. (Through INUEE)

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
I	School of International Studies								
1	Centre for European Studies								
	Ph.D. in European Studies	EUPH	2	1	0	0	2	1	6
2	Centre for East Asian Studies								
	i) Ph.D. in Japanese Studies	JPIH	2	1	0	0	1	0	4
	ii) Ph.D. in Chinese Studies	CHIH	3	1	1	0	2	1	8
	iii) Ph.D. in Korean Studies	KOIH	2	1	0	0	1	0	4
3	Centre for South Asian Studies								
	Ph.D. in South Asian Studies	SASH	2	1	1	0	2	1	7
4	Centre for Indo-Pacific Studies								
	Ph.D. in Indo-Pacific Studies	IPSH	3	1	1	0	2	1	8
5	Centre for Inner Asian Studies								
	Ph.D. in Inner Asian Studies	IASH	2	1	1	0	2	1	7
6	Centre for West Asian Studies								
	Ph.D. in West Asian Studies	WASH	4	1	1	1	2	1	9
7	Centre for Russian & Central Asian Studies								
	Ph.D. in Russian & Central Asian Studies	RCAH	4	1	1	1	2	1	9
8	Centre for Comparative Politics and Political Theory								
	Ph.D. in Comparative Politics and Political Theory	CPTH	2	1	0	0	1	1	5
9	Ph.D. in Energy Studies	ESPH	1	0	0	0	0	0	1
II	School of Social Sciences								
1	Centre for Economic Studies & Planning								
	Ph.D. in Economics Studies & Planning	ECOH	8	3	1	1	5	2	19

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
2	Centre for Historical Studies								
	i) Ph.D. in Ancient History	ANCH	2	1	0	0	2	1	6
	ii) Ph.D. in Medieval History	MEDH	2	1	0	0	1	0	4
	iii) Ph.D. in Modern History	MODH	2	0	0	0	1	0	3
3	Centre for Political Studies								
	Ph.D. in Political Studies	POLH	12	5	2	2	8	3	30
4	Centre for the Study of Regional Development								
	i) Ph.D. in Geography	GEOH	4	1	1	1	3	1	10
	ii) Ph.D. in Economics	ECNH	4	2	1	1	3	1	11
5	Centre for the Study of Social Systems								
	Ph.D. in Social Systems	SOCH	6	3	1	1	4	2	16
6	Centre for Philosophy								
	Ph.D. in Philosophy	SPHH	2	1	0	0	1	0	4
7	Centre for Women Studies								
	Ph.D. in Women Studies	WSPH	1	0	0	0	1	0	2
8	Centre for the Study of Social Exclusion and Inclusive Policy								
	Ph.D. in Social Exclusion and Inclusive Policy	SEIH	2	1	1	0	2	1	7
9	Center for Informal Sector and Labour Studies								
	Ph.D. in Informal Sector and Labour Studies	ISLH	2	1	0	0	1	0	4
III	School of Language, Literature & Culture Studies								
1.	Centre for French and Francophone Studies								
	Ph.D. in French	FRNH	2	1	0	0	2	1	6
2.	Centre for German Studies								
	Ph.D. in German	GERH	2	1	0	0	2	1	6

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
3.	Centre for Indian Languages								
	i) Ph.D. in Hindi	HNDH	6	2	1	1	4	2	15
	ii) Ph.D. in Urdu	URDH	3	1	1	0	2	1	8
	iii) Ph.D. in Hindi Translation	HTLH	2	1	0	0	1	1	5
	iv) Ph.D. in Tamil	TAMH	2	0	0	0	1	0	3
4.	Centre for Russian Studies								
	Ph.D. in Russian	RSNH	2	1	0	0	2	1	6
5	Centre for Spanish, Portuguese, Italian and Latin American Studies								
	Ph.D. in Spanish	SPNH	2	0	0	0	1	0	3
6.	Centre for Japanese Studies								
	Ph.D in Japanese	JAPH	2	1	0	0	2	1	6
7	Centre for Korean Studies								
	Ph.D in Korean	KORH	3	1	1	0	2	1	8
8	Centre for Chinese, South East Asian Studies								
	Ph.D. in Chinese	CHNH	10	4	2	1	6	2	24
9	Centre for Persian and Central Asian Studies								
	Ph.D. in Persian	PERH	2	0	0	0	1	0	3
10	Centre for Arabic and African Studies								
	Ph.D. in Arabic	ARBH	2	1	1	0	2	1	7
11	Centre for Linguistics								
	Ph.D. in Linguistics	LINH	3	1	1	0	2	1	8
IV	School of Computer & Systems Sciences								
	Ph.D. in Computer Sciences	SCSH	5	2	1	1	4	1	13
	Ph.D. in Microsystems	MISH	2	0	0	0	1	0	3

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
V	School of Environmental Sciences								
	Ph.D. in Area –I	ONEH	1	0	0	0	1	0	2
	Ph.D. in Area-III	THRH	1	0	0	0	0	0	1
	Ph.D. in Area-IV	FORH	1	0	0	0	0	0	1
VI	School of Life Sciences								
	Ph.D. in Life Sciences	SLSH							
	Group –I (GON)	GONH	2	0	0	0	1	0	3
	Group –II (GTW)	GTWH	1	0	0	0	1	0	2
	Group –III (GTR)	GTRH	1	0	0	0	1	0	2
	Group –IV (GFO)	GFOH	1	0	0	0	1	0	2
	Group –V (GFI)	GFIH	1	0	0	0	1	0	2
VII	School of Physical Sciences								
	Ph.D. in Physical Sciences	PHYH	2	1	0	0	1	0	4
	Ph.D. in Chemical Sciences	CHEH	2	0	0	0	1	0	3
VIII	School of Arts and Aesthetics								
	Ph.D. in Visual Studies	VSAH	2	1	1	0	2	1	7
	Ph.D. in Theater and Performance Studies	TPSH	3	1	1	0	2	1	8
	Ph.D. in Cinema Studies	CNSH	3	1	1	0	2	1	8
IX	School of Computational and Integrative Sciences								
	Ph.D. in computational Biology and Bioinformatics	CBBH							
	Track-I	TROH	1	0	0	0	1	0	2
	Track-II	TRTH	2	1	0	0	1	0	4
	Track-III	TRDH	2	0	0	0	1	0	3
X	School of Biotechnology								
	Ph.D. in Biotechnology	SBTH	1	0	0	0	0	0	1
XI	ABV School of Management and Entrepreneurship								
	Ph.D. in Management	SMEH	4	1	1	1	2	1	9

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
XII	Centre for Molecular Medicine								
	Ph.D. Molecular Medicine	CMMH	5	2	1	1	3	1	12
XIII	School of Sanskrit and Indic Studies								
	Ph.D. in Sanskrit	SANH	6	2	1	1	4	2	15
XIV	Centre for Nano Sciences								
	Ph.D. in Nano Science	NNSH	1	0	0	0	1	0	2
XV	Special Centre for North East India Studies								
	Ph.D. in North East India Studies	NESH	1	0	0	0	1	0	2
XVI	Special Centre for National Security Studies								
	National Security Studies	NSSH	2	1	0	0	1	0	4

Ph.D. (Through NET-JRF)

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
I	School of International Studies								
1	Centre for Canadian, US and Latin American Studies:								
	i) Ph.D. in United States Studies	USSH	1	0	0	0	0	0	1
	ii) Ph.D. in Latin American Studies	LAMH	1	0	0	0	0	0	1
2	Centre for International Legal Studies								
	Ph.D. in legal Studies	ILGH	1	0	0	0	0	0	1
3	Centre for International Trade & Development								
	i) Ph.D. in Trade & Development	ITDH	5	2	1	1	4	1	13
4	Centre for East Asian Studies								
	ii) Ph.D. in Chinese Studies	CHIH	1	0	0	0	0	0	1

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
5	Centre for International Politics, Organization & Disarmament								
	i) Ph.D. in International Politics	INPH	2	1	1	0	2	1	7
	ii) Ph.D. in International Organization	ORGH	2	1	0	0	1	1	5
	iii) Ph.D. in Diplomacy and Disarmament	DADH	4	1	1	1	2	1	9
	iv) Ph.D. in Political Geography	POGH	2	1	0	0	1	0	4
6	Centre for South Asian Studies								
	Ph.D. in South Asian Studies	SASH	2	1	0	0	1	0	4
7	Centre for Indo-Pacific Studies								
	Ph.D. in Indo-Pacific Studies	IPSH	3	1	1	0	2	1	8
8	Centre for Inner Asian Studies								
	Ph.D. in Inner Asian Studies	IASH	1	0	0	0	1	0	2
9	Ph.D. in Energy Studies	ESPH	1	0	0	0	0	0	1
II	School of Social Sciences								
1	Centre for Historical Studies								
	i) Ph.D.. in Ancient History	ANCH	2	1	0	0	1	0	4
	ii) Ph.D.. in Medieval History	MEDH	2	1	0	0	1	1	5
	iii) Ph.D.. in Modern History	MODH	2	1	0	0	2	1	6
2	Centre for the Study of Regional Development								
	i) Ph.D. in Geography	GEOH	2	1	0	0	1	1	5
	iii) Ph.D. in Population Studies	POPH	1	0	0	0	1	0	2
3	Zakir Husain Centre for Educational Studies								
	Ph.D. in Educational Studies	EDUH	3	1	1	0	2	1	8
4	Centre for Studies in Science Policy								
	Ph.D. in Studies in Science Policy	SSPH	2	0	0	0	1	0	3
5	Centre for Philosophy								
	Ph.D. in Philosophy	SPHH	3	1	1	0	2	1	8

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
6	Centre for Media Studies								
	Ph.D. in Media Studies	CMSH	1	0	0	0	0	0	1
III	School of Language, Literature & Culture Studies								
1.	Centre for French and Francophone Studies								
	Ph.D. in French	FRNH	1	0	0	0	1	0	2
2.	Centre for German Studies								
	Ph.D. in German	GERH	2	1	0	0	2	1	6
3.	Centre for Indian Languages								
	i) Ph.D. in Hindi	HNDH	6	2	1	1	4	2	15
	ii) Ph.D. in Urdu	URDH	3	1	1	0	2	1	8
	iii) Ph.D. in Hindi Translation	HTLH	2	1	0	0	1	1	5
	iv) Ph.D. in Tamil	TAMH	1	0	0	0	1	0	2
4.	Centre for Russian Studies								
	Ph.D. in Russian	RSNH	2	1	0	0	1	0	4
5	Centre for Spanish, Portuguese, Italian and Latin American Studies								
	Ph.D. in Spanish	SPNH	2	1	0	0	1	1	5
6.	Centre for Japanese Studies								
	Ph.D in Japanese	JAPH	1	0	0	0	0	0	1
7	Centre for Chinese, South East Asian Studies								
	Ph.D. in Chinese	CHNH	2	1	1	0	2	1	7
8	Centre for Persian and Central Asian Studies								
	Ph.D. in Persian	PERH	2	1	0	0	1	0	4
9	Centre for Arabic and African Studies								
	Ph.D. in Arabic	ARBH	1	0	0	0	1	0	2
10	Centre for Linguistics								
	Ph.D. in Linguistics	LINH	2	0	0	0	1	0	3

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
11	Centre for English Studies								
	Ph.D. in English	ENGH	4	2	1	1	3	1	11
IV	School of Computer & Systems Sciences								
	Ph.D. in Computer Sciences	SCSH	5	2	1	1	4	1	13
	Ph.D. in Microsystems	MISH	2	0	0	0	1	0	3
V	School of Environmental Sciences								
	Ph.D. in Area –I	ONEH	1	0	0	0	0	0	1
	Ph.D. in Area-II	TWOH	2	1	0	0	1	0	4
	Ph.D. in Area-III	THRH	2	1	0	0	1	1	5
	Ph.D. in Area-IV	FORH	4	1	1	1	2	1	9
VI	School of Life Sciences								
	Ph.D. in Life Sciences	SLSH							
	Group –I (GON)	GONH	2	1	0	0	1	1	5
	Group –II (GTW)	GTWH	2	0	0	0	1	0	3
	Group –III (GTR)	GTRH	1	0	0	0	1	0	2
	Group –IV (GFO)	GFOH	1	0	0	0	1	0	2
	Group –V (GFI)	GFIH	2	1	0	0	1	0	4
VII	School of Physical Sciences								
	Ph.D. in Physical Sciences	PHYH	2	1	0	0	1	1	5
	Ph.D. in Chemical Sciences	CHEH	2	1	0	0	1	1	5
VIII	School of Computational and Integrative Sciences								
	Ph.D. in computational Biology and Bioinformatics	CBBH							
	Track-I	TROH	2	1	0	0	1	0	4
	Track-II	TRTH	2	1	1	0	2	1	7
	Track-III	TRDH	2	0	0	0	1	0	3
IX	School of Biotechnology								
	Ph.D. in Biotechnology	SBTH	3	1	1	0	2	1	8

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
X	ABV School of Management and Entrepreneurship								
	Ph.D. in Management	SMEH	4	1	1	1	3	1	10
XI	Centre for Molecular Medicine								
	Ph.D. Molecular Medicine	CMMH	2	1	1	0	2	1	7
XII	Centre for the Study of Law & Governance								
	Ph.D. Law and Governance	CLGH	7	3	1	1	4	2	17
XIII	Centre for Nano Sciences								
	Ph.D. in Nano Science	NNSH	2	1	0	0	2	1	6
XIV	Special Centre for North East India Studies								
	Ph.D. in North East India Studies	NESH	1	0	0	0	1	0	2
XV	School of Engineering								
	Ph.D. in Computer Science and Engineering	CSEH	2	1	0	0	2	1	6
	Ph.D. in Electronics and Communication Engineering	ECEH	2	1	0	0	1	0	4
	Ph.D. in Mechanical Engineering	MEEH	1	0	0	0	1	0	2

Ph.D. (Through GATE)

Sl. No.	Department	Sub	Seat Matrix						
			UR	SC	ST	PWD	OBC	EWS	Total
I	School of Engineering								
	Ph.D. in Computer Science and Engineering	CSEH	2	1	0	0	1	0	4
	Ph.D. in Electronics and Communication Engineering	ECEH	2	1	0	0	1	0	4

Part-Time

S.No.	Department	Sub	Seat Matrix						
I	School of Language, Literature & Culture Studies		UR	SC	ST	PWD	OBC	EWS	Total
1.	Centre for Korean Studies								
	DOP in Mongolian	MOND	8	3	1	1	5	2	19
2.	Centre for Chinese, South East Asian Studies								
	i. DOP in Bhasha Indonesia	BHAD	18	7	3	2	12	4	44
3.	Centre for Arabic and African Studies								
	DOP in Hebrew	HEBD	5	2	1	1	4	1	13

XXI. ELIGIBILITY OF CANDIDATES WHO ARE DUE TO APPEAR IN THE QUALIFYING EXAMINATION

The candidates who are due to appear in their respective qualifying examination may also apply. In the event of their selection they will be entitled to admission only if they have secured the minimum prescribed percentage of marks in their qualifying examination and they submit all documents including final marks-sheet of the qualifying examination before the deadline fixed for registration.

XXII. TIME-TABLE FOR ADMISSION

Dates to be announced later on declaration of results by NTA

Note: Candidates are advised to check JNU admission link regularly on website.

XXIII. EXAM CENTRE STATE WISE

For the List of Exam Centres State Wise check “Information Bulletin 2022-23” available on the official website of the NTA (www.nta.ac.in)

XXIV. DATE SCHEDULE FOR ENTRANCE

For Date Schedule for Entrance Examination check “Information Bulletin 2022-23” available on the official website of the NTA (www.nta.ac.in)

XXV. IMPORTANT POINTS TO REMEMBER WHILE APPLYING
Please Note:

- a) The outstation candidates admitted to the programme of study of the University will be considered for hostel accommodation as per rules of the University subject to availability of hostel accommodation. Students may please note that grant of admission in the University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to its availability.
- b) **The intake for Ph.D. indicated in the e-Prospectus is tentative and is subject to revision as per UGC Regulations issued from time to time.**
- c) **Eligibility of Candidates who are due to appear in the qualifying examination:** The candidates who are due to appear in their respective qualifying examination may also apply. In the event of their selection they will be entitled to admission only if they have secured the minimum prescribed percentage of marks in their qualifying examination and they submit all documents including final year mark-sheets of qualifying examination before the deadline fixed for registration.
- d) The permission to appear in the Entrance Examination is subject to fulfilling minimum eligibility requirements prescribed for admission to the concerned programmes of study. Candidate may therefore, appear in the Computer Based Test (CBT) only if he/she fulfils the eligibility requirements for the programmes for which he/she is seeking admission. Despite this caution, in case candidates does not meet the minimum eligibility criteria prescribed for the concerned programmes and appear in the Computer Based Test (CBT), he/she will do so at his/her own risk and cost, and if at any stage, it is found that he/she do not fulfil the minimum eligibility requirements, the admission, if granted to him/her, shall be cancelled ipso-facto.
- e) Admission/Registration to the candidate, if granted by taking an “**Undertaking for Migration Certificate**”, the candidate is required to submit the same latest by the 30th October of the year of admission, failing which the admission granted shall stand cancelled. No further time would be allowed beyond 30th October for the purpose under any circumstances.
- f) The Entrance Examination/processing fee will be charged as per decision of NTA. Please note that, if application is rejected for any reason whatsoever or candidate is not able to take the Entrance Examination or appear in the Viva-Voce, the Entrance Examination fee/processing fee paid by the candidate shall not be refunded.
- g) No request for change of category subsequent to submission of Application Form will be accepted.
- h) Applicant can opt for maximum of three fields of study of his choice for the **same level of programme** for appearing in the Entrance Examination. Single application form should indicate order of preference for admission.
- i) While selecting the Field of Study candidate should consult the schedule of examination which appears at Annexure-III of Information Bulletin of NTA available at NTA website before indicating the preference with a view to ensure that there is no clash in the entrance examination schedule. The University assumes no responsibility if the candidate, despite caution, have opted for more than one field of study for which the examinations have been scheduled simultaneously.
- j) Option(s) once exercised shall be final and no change of option(s) shall be allowed. The preference wise option given by the candidate at the time of online application will be considered as final e.g. a candidate who has been selected for a discipline falling under higher preference will have no claim for other preferences of the same level of programme. In other words, if the candidate gets selected in higher preference, he/she will be offered admission only in that.
- k) If candidate submits more than one application form **for the same level of programme**, all his/her online application form shall summarily be rejected.
- l) Please note that candidates name, parent's/guardian's name, and date of birth in all documents required in connection with admission should exactly be the same as mentioned in 10th class or first Board/Pre-University examination certificate. Any deviation, whenever discovered, may lead to cancellation of his/her candidature.
- m) A candidate who successfully completes a programme in one particular language/subject may not be entitled for admission to same level of programme (language/subject) again. The candidate may be allowed one more chance to get admission in other language/subject. Further, the candidate who fails to complete the programme successfully in the first two chances will not be given admission third time in the same language/subject under any circumstances. This will be applicable to all programmes of study being offered by the University.

Reverse admission in a lower program of study after completing a higher program of study in the same subject would not be permitted.

- n) Candidates who have obtained their Bachelor's degree under the pattern of education other than 10+2+3 will be considered for admission to the Master's Programme if they have successfully completed the first year of Master's degree programme or a bridge course in lieu thereof, wherever prescribed, from a recognised University with prescribed percentage of marks.
- o) No candidate admitted to a full-time programme of study in the University shall accept or hold any employment paid (Regular/Contractual/adhoc) or otherwise or shall be full time student of any other Institution/University during the course of his/her study at the University.
- p) If any information furnished by the candidate in the application form is found to be false, his/her admission, if granted on the basis of such information will be cancelled, ipso facto.
- q) Selected candidates shall be required to block the seats, as per the instructions given in the offer letter within the scheduled time. While blocking the seats, candidates shall be required to upload the required documents (as per instructions) alongwith payment of prescribed fees in online payment mode.

Any dispute with regard to any matter relating to admission shall be subject to the jurisdiction of Delhi Courts only.

XXVI. SYLLABUS FOR JNU ENTRANCE EXAMINATION 2022-23
--

1. SCHOOL OF INTERNATIONAL STUDIES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
	Centre for Canadian, US and Latin American Studies (CCUS&LAS)		<p>The entrance exam will be divided into 2 sections of 50 % each: Research Methodology and Area Studies.</p> <p>Candidates applying for Ph.D. programmes are allowed to exercise only one option i.e., Canadian; or US; or Latin American Studies, and the option so exercised must be clearly mentioned in the appropriate column in the application form.</p> <p style="text-align: center;"><u>Section I</u></p> <p style="text-align: center;">RESEARCH METHODOLOGY</p> <ol style="list-style-type: none"> 1. Social science research vs. natural science research 2. Inter-disciplinary research 3. Variables in research 4. Types of research: descriptive; empirical; analytical; historical and doctrinal 5. Questionnaires and interviews; participant and non-participant observation 6. Survey research 7. Content analysis 8. Case study research 9. Managing and reviewing literature for research 10. Research proposal, research questions and hypothesis formulation 11. Primary and secondary sources; use of libraries and archives 12. Research ethics/ ethical practices in research

		<u>Section II</u>
1	Canadian Studies – CANH (826)	Canadian Studies <ol style="list-style-type: none"> 1. Multiculturalism and Ethnicity in Canada 2. Immigration policies and Integration 3. Environmental issues 4. Contemporary political, social and economic issues in Canada 5. Party System and Electoral Politics 6. Political Culture 7. Federalism and Provincial Government 8. Quebec and issues of Regionalism 9. Foreign Policy approaches and trends 10. Canada and India relations 11. Regional Economic Integration 12. Inter-American relations 13. Canada and United Nations; Peace-keeping, Peace-building and Peace-enforcement 14. Canada and the Global Security: Arms Control and Disarmament 15. Nuclear Non-proliferation, Missile Control Regime
2	Latin American Studies –LAMH (828)	Latin American Studies <ol style="list-style-type: none"> 1. Government and politics in Latin America: executive, legislature, judiciary 2. Political Culture, Parties and movements 3. Role of labour, peasantry and middle class 4. Theories of development 5. Church 6. Military 7. Environmental issues 8. Indigenous communities 9. Independence movements and ideas 10. Social movements 11. Latin America in world affairs 12. Relations with US, Asia, Africa and Europe 13. India and Latin America 14. Latin American and Caribbean regionalism 15. Contemporary political, social and economic issues in major Latin American and Caribbean countries
3	United States Studies – USSH (827)	US Studies <ol style="list-style-type: none"> 1. Bill of Rights – American Constitution 2. Federalism 3. Media, political parties and elections 4. Congress, judiciary and judicial review 5. Power and role of the US President and domestic factors in Foreign Policy. 6. US Policy towards South Asian Countries 7. US Foreign policy during Cold War (Containment Policy, Marshall Plan, Alliance Building, Truman Doctrine) 8. Foreign Policy trends and patterns in Post-Cold War America (UN, West Asia, Europe, Asia, international institutions). 9. American ideals: liberty, equality, republicanism, individualism, democracy, faith-neutrality 10. Waves of immigration to America: old, new and newest 11. Ethnicity, race, religion and gender in America 12. Social problems: Gun violence, racism, abortion, teenage pregnancy, homelessness, drugs and alcoholism 13. Terrorism and counter terrorism strategy 14. US in the Post Pandemic Era

4	Centre for European Studies (CES)	European Studies – EUPH (829)	<p>The test is divided into two sections, research methodology and area studies.</p> <p>Section I - Meaning and importance of Research – Types of Research Concepts in Social Research: Data, Research Methods, Techniques, Concepts and Indicators, Variables, Sample, Research Designs, Selection and formulation of Research Problem, Hypothesis, Research Questions; Issues in social research: Subjectivity and Objectivity, Reliability and Validity,</p> <p>Section II - The syllabus will be on contemporary issues, discourses, debates and developments in politics, society, foreign policy, security and economy of European states/ European Union.</p>
5	Centre for International Legal Studies (CILS)	Int. Legal Studies – ILGH (830)	<p>The syllabus for the entrance examination will contain multiple choice questions covering two sections (50% each).</p> <p>Section A (Subject-specific knowledge):</p> <ol style="list-style-type: none"> 1) General Principles relating to International Law; history nature and subjects of international law; statehood and international legal personality; sources of international law; relationship between international law and municipal law; jurisdiction and state immunity; recognition of states; Diplomatic and Consular Immunities; 2) Functions and processes of International Law; public order, global justice; human rights; trade and sustainable development; global public goods and common heritage of mankind; Antarctica, Outer Space; Atmosphere and areas beyond national jurisdiction; 3) Law of International Organisations; United Nations, World Trade Organisation, UN Specialized Agencies; 4) Responsibility and Enforcement in International Law; peaceful settlement of disputes; world court and other international tribunals; 5) Law of the Sea; International Environmental Law; International Humanitarian Law; International Trade and Economic Law; <p>Section B (Research Methodology):</p> <ol style="list-style-type: none"> 1) Meaning and scope of International Law Research; 2) Types of Research: Descriptive, Empirical, Analytical, Historical and Doctrinal; 3) Various approaches to study International Law; 4) Soft and Hard Law Norms in International Law; 5) Identifying Primary and Secondary Sources in International Law; <ol style="list-style-type: none"> a. Customary International Law b. Treaties (multilateral and bilateral) c. General Principles of International Law; d. Declarations and Guidelines 6) Researching International Law through International Adjudicatory Institutions; 7) Survey Research in International Law; 8) Case Study Research in International Law; 9) Comparative Study Research in International Law; 10) Review of Literature and thematic survey of topics in International Law; 11) Research Proposal; Designing Research Questions; Formulation of Hypothesis;
6	Centre for International Trade & Development (CITD)	Int. Trade & Development – ITDH (831)	The entrance examination will contain multiple choice questions covering research methodology and subject-specific knowledge. The syllabus will include Mathematical Economics, Statistics, Econometrics, Microeconomics, Macroeconomics, International Trade, Development Economics <i>including advanced and applied topics in these subjects taught at the Master's level.</i>
7	Centre for East Asian Studies (CEAS)	Chinese Studies – CHIH (832)	The syllabus for the examination includes research methodology 50% and the rest 50% is tested on subjects related to broader East Asian/Global developments; China's Foreign, Economic, Political & Social Issues; Japan's Foreign, Economic, Political & Social Issues; Korea's Foreign, Economic, Political & Social Issues. Major developments in East Asia are highlighted to test the candidate's capabilities in conducting research in these areas.
8		Japanese –JPIH (833)	

9		Korean – KOIH (834)	
10	Centre for International Politics, Organisation and Disarmament (CIPOD)	International Politics – INPH (835)	<p><u>(A) International Politics (INP)</u></p> <ol style="list-style-type: none"> 1. Classical Realism 2. Non-Western Realism: Thucydides, Sun Tzu, Kautilya 3. Neorealism and the difference between Classical Realism and Neorealism 4. Variants of Neorealism: Defensive, Offensive, Neoclassical Realisms 5. Liberal International Theory including Complex Interdependence, Neoliberal Institutionalism, Democratic Peace Theory, Trade and Commercial Liberalism 6. Constructivist International Theory 7. Marxist and Gramscian International Political Theory 8. Theories of International Society, Especially the British School 9. Feminist International Theory 10. Modern Non-Western International Theory 11. Great Debates in International Theory 12. Theories of Nonalignment <p><u>(B) Political Geography (POG)</u></p> <ol style="list-style-type: none"> 1. Nature and scope of political geography 2. Political Geography Approaches: Functional, Unified Field theory, Laws of Spatial Growth of States 3. Political Geography Concepts: Space, Place, Scale, Region, Core Areas and Capital Cities, State, Sovereignty, Nation 4. Environment, Development and Geography 5. Geographical and Geopolitical Imaginations 6. Theories of geopolitics: traditional, critical, postmodern, feminist 7. Geo-strategy 8. Geopolitics Concepts: Territory, Border, Frontier, Boundaries, Empire 9. Issues and Concerns: Geopolitics of Resources; Geopolitics of Wars; Laws of the Sea; Cold War Geopolitics and multi-polar Geopolitics; Geopolitical hotspots; 10. Contemporary issues and concerns in Political Geography and Geopolitics 11. Research Methodology: GIS and its Applications 12. Qualitative and Quantitative Methods in International Relations 13. Research Design <p><u>(C) International Organization (ORG)</u></p> <ol style="list-style-type: none"> 1. Concept, definition and classification of international organization(s) 2. Roles, functions and powers of international organizations 3. Theoretical approaches to international organization 4. International organizations in world politics 5. Historical development of international organization during 19th and early 20th centuries 6. League of Nations 7. The second generation international organizations: The United Nations and its system - establishment, activities, problems 8. Global problems (like war and peace, development, human rights, environment) with reference to the role of the United Nations 9. Reform and restructuring of the United Nations including the Security Council 10. Economic and financial organizations - the IMF, the IBRD and the WTO 11. Regional organizations of Europe, Africa, Asia, Americas 12. India's role in various international organizations 13. Globalization, global governance and international organizations <p><u>(D) Diplomacy and Disarmament (DAD)</u></p> <ol style="list-style-type: none"> 1. Diplomacy: history, theory and practice 2. Diplomacy: bilateral, multilateral, regional and global 3. Economic and trade diplomacy 4. Paradiplomacy or constituent diplomacy
11		International Organisation – ORGH (837)	
12		Diplomacy and Disarmament – DADH (838)	
13		Political Geography – POGH (836)	

			<ol style="list-style-type: none"> 5. Negotiations: theory and practice 6. Climate change and environmental negotiations 7. Nuclear politics including arms control, non-proliferation and disarmament 8. Theories of deterrence 9. Chemical and biological weapons 10. War: concept, theory and evolution 11. Peace: concept and theory in mainstream and critical-theoretical perspectives 12. Revolution in military affairs 13. Conflict management and resolution 14. Security: concept, theory and evolution 15. National security 16. Terrorism including nuclear terrorism and counter-terrorism 17. Non-traditional security including human security 18. Environmental security 19. Technology and global politics 20. Critical theory and Critical Security Studies including the Copenhagen, Paris and Aberystwyth schools of thought 21. Critical Terrorism Studies 22. Critical Military Studies <p><u>(E) Research Methodology (Common)</u></p> <ol style="list-style-type: none"> 1. Inductive and deductive reasoning 2. Ontology and epistemology 3. Philosophy of science especially the contribution of Bertrand Russell, Karl Popper, Thomas Kuhn, Imre Lakatos and Paul Feyerabend 4. Positivism, Interpretivism and Critical Social Science 5. Qualitative method: rationale, characteristics and applications 6. Case study research: single case study and multiple case studies 7. Comparative study 8. Content analysis 9. Sources in research: primary and secondary 10. Archival research: major archives for international research in India 11. Quantitative method: rationale, characteristics and applications 12. Basic statistical techniques 13. Sampling: concept, logic and types 14. Correlation and causation 15. Observation including participant and non-participant observation 16. Ethnography 17. Interviews 18. Mixed methods 19. Research puzzle 20. Hypothesis: rationale and characteristics, and variables, <i>i.e.</i> independent, dependent and intervening 21. Research ethics including plagiarism
14	Centre for Russian and Central Asian Studies (CR&CAS)	Russian & Central Asian Studies – RCAH (839)	<p>The syllabus will cover an overview of the History, Culture, Politics, Foreign Policy, Economy and Sociology of the fifteen countries comprising the former Soviet Union, namely the Russian Federation, Belarus, Ukraine, Moldova, Georgia, Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, Tajikistan, Azerbaijan, Armenia, Lithuania, Latvia and Estonia. The focus is on the following thematic areas:</p> <ol style="list-style-type: none"> 1. Comparative Politics and Theories of International Relations.

			<p>2. Research Methods in Social Sciences.</p> <p>3. Bolshevik Revolution, Soviet Politics, Industrialization debates, Collectivization, Five-year plans, Soviet Economy, Social System and Foreign Policy.</p> <p>4. Glasnost, Perestroika, Nationalist Movements in the late 1980s, Disintegration of the USSR, End of Cold War</p> <p>5. Post-Soviet Transition: Socio-political, Economic Developments, Nation and State-building Processes in the former Soviet States.</p> <p>6. Impact of Globalisation and Liberalization on former Soviet States</p> <p>7. India's Relations with the post-Soviet States</p> <p>8. Geopolitics, Energy Security, Foreign Policy, and Strategic Culture in the post-Soviet Space/States</p> <p>9. Gender, Environment, Water, Migration, Human Security, Civil Society and Media in the post-Soviet Space/States.</p> <p>10. New Regionalism in the post-Soviet Space.</p>
15	Centre for South Asian Studies (CSAS)	South Asian Studies – SASH (840)	<p>Questions for the Entrance Examination will be drawn from the following areas:</p> <ol style="list-style-type: none"> 1. Society and social issues in South Asia 2. Modern history of South Asia 3. Contemporary international politics 4. Politics and political system in South Asian countries. 5. Foreign, security and economic policies of the South Asian States. 6. Economic growth and development of South Asian countries. 7. Environmental issues in South Asia 8. Regional cooperation and economic integration issues in South Asia. 9. Research methods in Social Sciences.
16	Centre for Indo-Pacific Studies (CIPS)	Indo-Pacific Studies –IPSH (841)	<p>The Centre for Indo-Pacific Studies broadly covers the areas of Southeast Asia and Southwest Pacific.</p> <p>The entrance will be based on a syllabus covering the following areas:</p> <ol style="list-style-type: none"> 1) Regional History of Southeast Asia and Southwest Pacific. 2) Government and Politics in the region. 3) Economic issues in the region. 4) Security issues in the region. 5) India's relations with the region of Southeast Asia and Southwest Pacific. 6) Regionalism multilateralism and institutional mechanisms.
17	Centre for Inner Asian Studies (CIAS)	Inner Asian Studies –IASH (842)	<p>The test will comprise both research methodology and area studies. The following components include the syllabus:</p> <p>Research Methodology</p> <ol style="list-style-type: none"> 1. Types of Research: descriptive; empirical; analytical; historical and doctrinal 2. Survey research 3. Case study research 4. Comparative study research 5. Review of literature for research 6. Primary and secondary sources; use of libraries and archives 7. Inductive and deductive methods of reasoning 8. Qualitative and Quantitative methods: characteristics and application 9. Sampling: concept, logic and types 10. Observation including participant and non-participant 11. Research proposal and designing, research questions and hypothesis formulation 12. Research ethics <p>Area Studies</p> <ol style="list-style-type: none"> 1. Strategic Dimensions and Geopolitics of Central Asia, Mongolia and Afghanistan 2. International relations of Central Asia, Afghanistan and Mongolia, 3. Ethnicity and Religion in Central Asia, Afghanistan, Xinjiang, Inner Mongolia

			<p>and Tibet.</p> <ol style="list-style-type: none"> 4. Religious Extremism and Terrorism in Afghanistan, Central Asia and Xinjiang. 5. Society, Culture and Politics in Xinjiang, Inner Mongolia and Tibet. 6. Human Security and Gender Issues. 7. China's Nationalities Policy in Xinjiang, Tibet and Inner Mongolia. 8. Nation-building process in Central Asia, Mongolia and Afghanistan. 9. Social, Political and Economic Issues in Central Asia, Mongolia and Afghanistan 10. Energy Resources in Central Asia and Mongolia 11. Transportation Networks and trade linkages
18	Centre for African Studies (CAFS)	African Studies – AFSH (843)	<p>Geo-cultural Aspects: Land, People, Ecology, Environment, Languages and Culture</p> <p>Historical Aspects: Ancient African Empires Indigenous political systems Atlantic slave trade-its impact and implications Industrial Revolution and the elimination of slave trade</p> <p>Colonialism in Africa: European partition of Africa Asian (Indian) migration into Africa Patterns of Colonial rule in Africa Legacy of Colonialism Growth of nationalism and Liberation Movements in Africa</p> <p>Political Aspects: Political independence and Constitutional changes in Africa Growth of political parties and party-systems The role of military Democratisation process in Africa Rise and fall of Apartheid in South Africa Concepts of Pan-Africanism and African socialism</p> <p>Economic Aspects: Nature of African Economy Underdevelopment and Dependency patterns in Africa Neo-colonial penetration and problems of economic independence Development strategies in post-independence period Structural adjustment programmes in Africa-an evaluation Problem of poverty in Africa Africa's debt crisis Globalisation and its impact of Africa Regional economic cooperation and development (ECOWAS, SADC, COMESA, EAC and AEC)</p> <p>Social Aspects: Problems of nation-building in Africa Role of education State of Human Rights in Africa Role of civil society and women Problem of AIDS in Africa Ethnic conflicts in Africa Social change and structural transformation</p> <p>Africa and the World: Africa and the emerging International System Africa and European dominance Africa and the Cold War Post-Cold War scenario in Africa Africa and the New World Order Africa and the United Nations Inter-regional Cooperation</p>

			Role of the Organization of African Unity (OAU) Africa and the Non-aligned Movement (NAM) The Role and Relevance of the African Union (AU) 2001 India-Africa Relations
19	Centre for West Asian Studies (CWAS)	West Asian Studies –WASH (844)	Syllabus for Entrance Examination covers research methodology and domain knowledge of West Asia and North Africa (WANA) region including its geographical area ; Political and Social Systems; Military and Politics; Arab Nationalism, Turkish Nationalism; Zionism; Islamism & Islamist Movement; Political Economy of GCC States, Rentier Economy, Inter and Intra-State Conflicts; Regional Conflicts; Intellectual Traditions in Arab World and Iran; Foreign Policy analysis of major regional powers of the area, notably Egypt, Turkey, Syria, Israel, Saudi Arabia and Iran will be covered. In addition, the syllabus will also focus on the role of global powers in the region along with India's West Asia Policy, its interests and objectives.
20	Centre for Comparative Politics and Political Theory (CCPPT)	Comparative Politics and Political Theory –CPTH (845)	Questions are set keeping in mind the MA syllabi of disciplines in the Social Sciences and Humanities from which candidates may apply to the Centre. Questions are broad enough for candidates to apply their knowledge of the discipline in which they have their MA degree. It is expected that candidates are widely read in their respective disciplines.

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of International Studies	Human Rights Studies Programme – HRSH (846)	1. Theories - Natural Law Theory, Political Theory 2. Concepts - Vulnerability, Dignity, Right, Duty 3. International Human Rights Law - Hard Law, Soft Law 4. Core Human Rights Treaties 5. Vulnerable Groups 6. Specific Rights – civil, political, economic, social, cultural 7. Universalism, Cultural Relativism 8. Role of the United Nations – Human Rights Council, Special Rapporteurs 9. Role of National Institutions – NHRI, Parliament, Judiciary 10. Human Rights and Foreign Policy Research Methodology 1. Social Science Research – Impact, Challenges 2. Methods – Qualitative, Quantitative, Mixed 3. Research Ethics/ Ethical Practices in Research
2		Energy Studies Programme – ESPH (847)	1) Energy Security: A Conceptual Study 2) Energy Security and International Relations 3) Political Economy of Energy Security 4) Energy and Geopolitics 5) India's Energy Security: Policies and Politics 6) Energy in Foreign policy 7) Energy Security and Energy Governance 8) Global energy trends and scenarios 9) Debating Energy Security Transition: Role of Renewable Energy 10) Energy Security and Global South 11) Energy and Environment 12) Energy Security and Cooperation: South Asia, Gulf, Central Asia and European Energy 13) Methodology of Energy Security Studies: Comparative, Historical and Mixed Method Research, quantitative and qualitative variable analysis in Energy Security.

2. SCHOOL OF LANGUAGE, LITERATURE AND CULTURE STUDIES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through
Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian –PERH (848)	<p>1. Research Methodology i) References ii) Applied Mechanisms of Research- iii) Research Writings iv) Use of Manuscripts, Archives and Texts in Research Works</p> <p>2. Trends in Persian Literature: Prose and Poetry This will cover major works of the contemporary authors/poets, their age and society in which they lived. The texts of literary works shall be studies from political, historical and sociological point of views to discern the currents and cross currents of society. The contributions of authors/poets to bring positive upheaval in society shall be the focal point of study.</p> <p>3. History of Persian Literature This will cover the history of Persian Literature in which the major works, their influences and movements caused by them in the Persian speaking world will be taken into account. The entire study shall be undertaken within the framework of socio-political history and the major events of the country having literary relevance will be properly emphasized.</p> <p>4. Indo-Persian Cultural Interactions This will briefly cover Indo-Persian Cultural interactions under the following broad topics: i) Contacts between Indian & Persian Courts and their impact on life and letters of the countries. ii) Translation of Indian texts and traditions in Persian and vice versa. iii) Literary interactions between India and the Persian World iv) Cultural events of literary significance, etc. v) Cultural Exchange Programme after 1947 and diplomatic contacts between India and the Persian world.</p> <p>5. Literary Interactions a) Persian literary translations in Indian languages and European language. b) European works of universal significance in Persian Language. c) Indian literature etc. in Persian language. d) Contemporary themes and subjects in Persian literature vis a vis world literature.</p> <p>6. Indo-Persian Literature: Historiography, Mysticism, Indian Style of writing (Prose & Poetry) etc.</p>
2	Centre for Arabic and African Studies (CA&AS)	Arabic –ARBH (849)	<ol style="list-style-type: none"> History of Arabic literature - pre-Islamic, Islamic, Umayyid, Abbasid and modern periods, literature of Al Maghreb, emigrant literature. Criticism – schools and trends Major works of Indian writers in Arabic studies Major centre of Arabic and Islamic learning in India Classical and Modern Prose Classical and modern poetry Theory of translation
3	Centre for Japanese Studies (CJS)	Japanese –JAPH (850)	<ul style="list-style-type: none"> Major literary works in Japanese literature In depth Knowledge to discuss about some literary works and authors such as Kawabata Yasunari, Akutagawa Ryunosuke, etc in Japanese Literary trends in Japan Current affairs in Japan Indo-Japanese relations in social, cultural, economic, political spheres Cultural, and social history of Japan, contemporary society in Japan.

			<ul style="list-style-type: none"> The research theme in which the candidate is interested, Details of the area in which the candidate would like to pursue research.
4	Centre for Korean Studies (CKS)	Korean –KORH (851)	The questions for the exam will cover research methodology, Korean language, linguistics, literature, culture, history, current affairs of Korea and translation studies. The examination will be in Korean language. The exam will be Computer Based Test (CBT) in Korean.
5	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese –CHNH (852)	The questions for the exam will cover research methodology, Chinese and Chinese literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language, etc. the examination will be conducted in the Chinese language.
6	Centre for French and Francophone Studies (CFFS)	French –FRNH (853)	The questions for the exam will cover research methodology, French & Francophone literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language. The examination will be conducted in the French language.
7	Center for German Studies (CGS)	German Literature – GERH (854)	<p>1. Common for all streams</p> <ul style="list-style-type: none"> Research methodology Research Interest Research proposal <p>2. Particular streams</p> <ul style="list-style-type: none"> German Literature German Linguistics Translation German History Didactics / German as Foreign Language
8	Centre for Indian Languages (CIL)	Hindi –HNDH (855)	<p>Ph.D. programme syllabus of the entrance test shall consist of 50% of Research Methodology and 50% shall be Subject specific.</p> <p>M.A. (Hindi) in various Colleges/Universities all over the country in general comprising the following topics:</p> <ul style="list-style-type: none"> Origin and development of Hindi Language & Literature Major literary works and Authors, Genres, Movements, trends of Hindi Literature Research Methodology
9		Urdu –URDH (856)	<p>Ph.D. programme syllabus of the entrance test shall consist of 50% of Research Methodology and 50% shall be Subject specific.</p> <p>M.A. (Urdu) in various Colleges/Universities all over the country in general comprising the following topics:</p> <ul style="list-style-type: none"> Research Methodology Textual Criticism Origin and development of Urdu Language History of Urdu Literature Dakkani Urdu Literature Classical Urdu Poetry and Prose Major genres of Urdu Poetry and Prose Major Literary movements and trends Major Critical Theories, Ideas and Critics Major works of research in Urdu and Researchers Major literary schools (dabistan) of Urdu.
10		Tamil –TAMH (857)	<p>Ph.D. programme syllabus of the entrance test shall consist of 50% of Research Methodology and 50% shall be Subject specific.</p> <ul style="list-style-type: none"> Basic Research Methodology. History of Tamil Literature: Sangam period to Modern period. History of Tamil Language: Sangam Period to Modern period and Calduvel concept. History of Tamil Grammar: Tolkaappiyam, Yapprugklakarigai, Iriyanar Akaporull, Thandiylalgram, Nannul, Purapporul venpaa, Maalai,

			<p>Pannirupaattiyal.</p> <ul style="list-style-type: none"> History of Tamil Criticism: Commentators, Modern Criticism. History of Tamil Folklore: Tales, Ballads, Proverbs. History of Tamil Journals: Colonial Period, Post Colonial Period. History of Tamil Drama and Film: Puranic/ Dravidian Movement / Social Oriented. History of Comparative Literature: Reception and Influence Theory, Parallel Theory, Genres, Translations. History of Tamil Nadu and Culture: Sangam Period to Post Colonial Period. History of Fine Arts in Tamil Nadu: Painting, Music, Sculptures.
11		Hindi Translation –HTLH (858)	<p>Ph.D. programme syllabus of the entrance test shall consist of 50% of Research Methodology and 50% shall be Subject specific.</p> <p>Candidates seeking admission in Hindi Translation are expected to have detailed knowledge of the tradition of translation in India, specially the tradition of translation in Hindi—</p> <ul style="list-style-type: none"> Basic knowledge of Research Methodology Basic knowledge of Hindi/Indian Literature Knowledge of the different forms of translation, Introduction and critical views on translation theories Major translation thinkers and their contribution Cultural aspects of translation Methodology of translation Translation and structure of language Major works of translation Indian Multilingualism and Translation Role of Translation in Social Change Technology and Translation Emerging issues in Translation Translation of Technical Terminology Computer Assisted Translation Tools Idea of Indian Literature/World Literature and Translation Role of Translation in Comparative Literature
12	Centre of Russian Studies (CRS)	Russian –RSNH (860)	<p>The Entrance Examination for this level is Computer Based Test (CBT) in Russian Language. The questions will be based on the Post graduate syllabi of the Centre of Russian Centre. The Test will consist of 50% questions on Research Methodology in the fields of Linguistics, Literature and Theory of Translation and 50% questions on Russian Grammar, 19th & 20th Century Soviet & Russian Literature, Translation of phrases & sentences and Culture.</p> <p>Candidates who qualify the CBT will be invited for a viva-voce which will be conducted in Russian. The candidate will be required to prepare a brief research proposal for the viva-voce based on his/her area of interest.</p>
13	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish –SPNH (861)	<p>The questions for the exam will cover research methodology, Spanish & Latin American literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language. The examination will be conducted in Spanish language.</p>
14	Centre for Linguistics (CLIN)	Linguistics –LINH (863)	<p>In order to get admitted into the Centre for Linguistics to do an M. Phil. & Ph.D., the students are tested for their knowledge that they acquire during their post-graduation in Linguistics from various Universities. The students are also tested for their very basic understanding of research aptitude which also involves critical thinking.</p> <p>The examination will be computer based test and will be conducted in English.</p>
15	Centre for English Studies (CES)	English –ENGH (864)	<p>Candidates will be examined in Literature in English, Literature in India and Other Parts of the World, English in India, Literary and Cultural Theories, Non-Literary Artistic Forms, and the Relationship between Literature, Culture and Society. The objective of the test would be to specifically assess the research aptitude of the candidates, and their suitability for a rigorous research programme.</p>

3. SCHOOL OF LIFE SCIENCES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Life Sciences (SLS)	Life Sciences – Group-I GONH (892)	<ol style="list-style-type: none"> Candidates will be tested in their basic knowledge on research methodology and core subjects of Life/Biological Sciences. The test will contain questions based on research methodology/experimental techniques related to Life/Biological Sciences research. The test would also contain subject-specific questions encompassing different branches of Life/Biological Sciences taught at the postgraduate level in various UGC affiliated universities/ institutions in the country. There is no specific syllabus designed for the test, but the candidates are advised to consult CSIR/UGC-NET JRF syllabus for guidance.
		Life Sciences Group-II – GTWH (893)	
		Life Sciences Group-III – GTRH (894)	
		Life Sciences Group-IV – GFOH (895)	
		Life Sciences Group-V – GFIH (896)	

4. SCHOOL OF SOCIAL SCIENCES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Economic studies and Planning (CESP)	Economics Studies & Planning - ECOH (865)	In the examination, the applicants will be examined in the topics covered by a standard M.A. Economics programme. These would broadly include Microeconomics, Macro-economics, Economic Development, Indian Economy and Statistical and Econometrics methods, Mathematical Methods in Economics, Research methodology. The distribution of questions in the examination would be in conformity with UGC Regulations, 2016.
2	Centre for Historical Studies (CHS)	Modern History-MODH (866)	<p>The exam is structured to test the students on:</p> <p>A. Historical methods</p> <p>B. Historiographical debates and discussions</p> <p>C. Themes related to political, economic and social history and on aspects of religion and culture pertaining to Indian history for the ancient, medieval, modern and contemporary periods (including World history).</p>
3		Medieval History –MEDH (867)	
4		Ancient History – ANCH (868)	

5	Centre for Political Studies (CPS)	Political Science –POLH (869)	<p>Applicants for the PhD programme will be examined for their analytical ability in topics covered by an M.A. programme in Political Science. These would broadly include Philosophy and Methods of the Social Sciences, Key Concepts in Political Theory, Contemporary Debates in Political Philosophy and Thought, Debates in Indian Politics (Constitution, Institutions, Processes and Public Policies), Issues in Comparative Politics, and International Relations. Questions on various quantitative and qualitative research methods commonly used in social science research will also feature in the entrance test. The Ph.D. programme syllabus of the entrance test shall consist of 50% of questions on the Research Methodology and 50% will be on other areas and sub-fields of Political Science as mentioned above.</p> <p>For more details about the programme and courses, please visit JNU website: http://www.jnu.ac.in/ssscps</p>
6	Centre for the Study of Regional Development (CSRD)	Population Studies- POPH (870)	<p>Students will be tested on research methodology and the relevant areas pertaining to the streams they apply for. The syllabus for the JNUEE has been framed keeping in mind the post graduate programs taught in most Indian universities.</p> <p>(i) Regional Development: Geography (code: GEO) Syllabus:</p> <p>(A) Research Methodology: Recent trends in geographical thought and research concerns in the field; Cartographic methods; descriptive statistics; sampling techniques; correlation and regression analysis, geographical information system, Remote sensing, and GPS; Morphometric techniques in areal and linear analysis, hydrograph and runoff estimation, evapotranspiration, methods of soil analysis, ground water mapping and estimation, RS in LU-LC and biodiversity mapping, magnitude-frequency classification of natural disasters, methods of graphical representation of economic loss of disasters, age estimation of landforms. Methods of landscape surveying and mapping; socio-economic field survey methods.</p> <p>(B) i. Physical Geography: Geomorphology, Oceanography, climatology, climate change, Hydrology, Biogeography, Ecosystems, Natural Resources and Natural Disasters (with special reference to India) ii. Human Geography: Population distributed and growth: human settlements, urbanization, migration rural and agricultural geography: Spatial structure and temporal trends of economic activity; Social groups and communities, tourism; (with special reference to India) iii. Regional Development: Concepts, strategies of regional development regional imbalances and levels of development in India; inclusive exclusions and exclusive inclusions, Globalization, natural resources and changing spatial division of labour.</p> <p>(ii) Regional Development: Population Studies (Code: POP) (A) Research Methodology: Basic and advanced statistics, Quantitative methods in population analysis, basic demographic data in India, methods of demographic data analysis, population survey (primary and secondary) methodologies and designs. (B) Nature and scope of population studies; sources of demographic data; Global and regional population trends, growth, distribution, and density; population composition; components of population dynamics namely fertility, mortality and migration; Population growth in relation to economic and social development. India's population policy and family planning programme, population theories, Demographic methods (may need the use of scientific calculator), Population, environment and development, urbanization, Human habitat, human ecology, Food security, Programs related to Population Health and Development, gender and population. (iii) Regional Development: Economics (Code: ECN) (A) Research Methodology: Basic Statistics, Quantitative methods in Economics, Sources of Data on the Indian Economy. (B) Economic theory and development theory (at the Master level); basic issues in Indian economy around themes like poverty, inequality, employment, banking, public finance, industry, agriculture, trade etc; India's development and policy choices; made over the years to address those challenges.</p>
7		Geography- GEOH (871)	
8		Economics- ECNH (872)	

9	Centre of Social Medicine and Community Health (CSMCH)	Social Sciences in Health- CSMH (873)	<p>PhD in Social Sciences and Health at the Centre of Social Medicine and Community Health is an interdisciplinary programme. The candidates are expected to have an understanding of diseases, health and wellbeing through the study of social, behavioural, economic, political, regional, spatial, cultural and environmental influences on health, health planning, policies and programmes and the application of social epidemiology and social science theories, concepts and methodologies for research in public health.</p> <p>Basic concepts in Social Sciences and its relevance to public health</p> <ol style="list-style-type: none"> 1. Social Stratification 2. Social Institutions and Groups 3. Culture 4. Characteristics of Rural and Urban Society 5. Sanskritisation 6. Social Capital and Cultural Capital 7. Poverty 8. Inequality 9. Globalization, liberalization, privatization 10. Motivation 11. Attitude, Perception and Behavior 12. Socialisation 13. Power 14. Conflict 15. Civil Rights, Democratic Rights and Human Rights 16. Social change 17. Social movements and civil society 18. Understanding Interconnections Between Economy, Polity And Society 19. Current Debates in Health <p>2. Application of Social Sciences to Health</p> <ol style="list-style-type: none"> 1. Social Determinants of Health 2. Development and Health 3. Social inequalities and marginalisation in health 4. Climate change and its impact on health 5. Population and development 6. Social exclusion, discrimination and health 7. Importance of large data sets for public health 8. Health promotion and Illness prevention 9. Mental Health and Disability 10. Medical Pluralism 11. Accessibility, Availability and Affordability of Health Care 12. Universal Health Care 13. Recent social issues and their implications for health <p>3. Research Methodology</p> <ol style="list-style-type: none"> 1. Qualitative methods in Social Sciences 2. Quantitative methods in Social Sciences 3. Importance of Qualitative and quantitative research methods used in public health 4. Mixed methods 5. Ethics in Research 6. Statistical Methods
10		Public Health – PUBH (874)	<p>PhD in Public Health at the Centre of Social Medicine and Community Health is an interdisciplinary programme. The candidates are expected to have an understanding of diseases, health and wellbeing through the study of Biomedical, social, behavioural, economic, political, regional, spatial, cultural and environmental influences on health, health policies and programmes and the application of public health and health systems research concepts and methodologies.</p> <p>1. Basic concepts in public health</p> <ol style="list-style-type: none"> 1. History of Public Health 2. Concepts in Public Health 3. Epidemiology 4. Epidemiology of Specific Diseases 5. Health planning, policy and Public Health Administration

			6. Health Management 7. Health economics 8. Nutrition 9. Environmental Sanitation 10. Demography and Family Planning 11. Mental Health 12. Application of Social Sciences in Health 13. Impact of urbanisation on health and disease. 14. School Health 15. Urban health 2. Research Methodology 1. Qualitative methods in Social Sciences 2. Quantitative methods in Social Sciences 3. Importance of Qualitative and quantitative research methods used in public health 4. Mixed methods 5. Ethics in Research 6. Statistical Methods
11	Centre for the Study of Social Systems (CSSS)	Social Systems - SOCH (875)	Candidates are expected to display a good research aptitude, analytical skills and usage of social science perspectives in answering questions from the following list of themes. 1. Thinkers Classical Thinkers: a. Karl Marx, Emile Durkheim, Max Weber b. Advanced Social Theories: Postmodernism, Postcolonialism and Poststructuralism c. Study of Monographs: Evans-Pritchard, Bronislaw Malinowski, Edmund Leach, Margaret Mead, Clifford Geertz 2. Philosophical Foundation of Theories and Methodology 3. Social Research/Research Methodology: Quantitative and Qualitative, Positivism, Interpretivism 4. Social Structure, Continuity and Change 5. Theories of Culture 6. Social Stratification: Gender, Caste, Class, Tribe, Ethnicity, Disability 7. Kinship, Family and Marriage 8. Social Inequalities and Movements 9. Education and Society 10. Religion and Society 11. State, Polity and Society 12. Economy and Society 13. Social Issues 14. Agrarian and Urban Sociology 15. Indian Sociology 16. Industrial/Corporate Sociology 17. Modernization, Globalization and Development 18. Media Studies
12	Zakir Husain Centre for Educational Studies (ZHCES)	Educational Studies- EDUH (876)	Zakir Husain Centre for Educational Studies is a multi-disciplinary Centre which approaches the field of education from four social science disciplines such as Economics, Sociology, History and Psychology. The students are expected to fit into any one of these disciplinary areas to carry out their research studies. The syllabus for the entrance examination under each of these areas of specialization is as follows (the list is only indicative, not exhaustive): A. History of Education Historical method and historiography; Modern Indian history; The educational debates; Woods Dispatch; The revolt of 1857; Establishment of modern universities; The Hunter Commission; India's freedom movement; Imperialism and nationalism. European History; Enlightenment; Reformation; Revolutions; Global History of modernization; introduction of modern sciences and science education. Education and knowledge-systems in pre-colonial India. B. Sociology of Education Classical and contemporary sociological theory and thinkers; Perspectives, Themes and issues in the Indian society; Rural and urban Sociology; Sociology of backward, marginalized and excluded; Sociology of education; Sociology of development; Sociology of knowledge; Sociology of organizations; Sociology of

			<p>Science and Technology; Methodology and methods in Sociological research.</p> <p>C. Psychology of Education</p> <p>1. Fundamental Psychological Processes: Attention, Perception, Learning, Perception, Memory, Thinking and Problem Solving, Emotion and motivation; Intelligence: Theories and Measurement; Personality Theories; Theories of Human Development: Cognition, Emotion, Moral, Social;</p> <p>2. Social Psychology: Social Influence Process, Social Cognition, Group Processes, Intergroup Relations; Research Methods in Psychology: Survey, Experiment, Case Study, Qualitative Approach: Narrative, Discourse Analysis, Interview; Cross-cultural indigenous, and critical perspectives in Psychology.</p> <p>D. Economics of Education</p> <p>1. Microeconomics: Theory of Consumer Behaviour- price effect and substitution effects; theory of revealed preference, elasticity of demand; Theory of Production function, short run and long run, isoquants, cost functions. Theory of the Market Structure: various forms of market and price-output decisions (perfect competition, monopoly, monopolistic competition, oligopoly); Neo-classical theory of distribution, Welfare Economics and General Equilibrium</p> <p>2. Macroeconomics: National Income Accounting- national income as a measure of welfare and economic progress; Theories of consumption and investment- Models of income determination; Simple Keynesian model, IS-LM model; Theories of supply and demand for money; Phillips curve and theories inflation; Open economy macroeconomics and Balance of Payments; and international trade.</p> <p>3. Theories of growth and development and the Indian Economy: Employment and labour; Income Inequality; Globalization and Internationalization; New Economic Policy and its impact on social sector and physical infrastructure in the context of India; Human development in India.</p> <p>Research Methodology:</p> <p>Research methods and research methodology- nature of the field and their distinct concerns; Philosophy and methods of the sciences, social sciences and humanities; qualitative and quantitative research methods, hypothesis, concepts and variables, sampling procedures, data gathering; testing and experimentation, procedures of validation; steps in the research process; research paradigms and frameworks; ethnography; and historiographic methods.</p> <p>Measures of Central Tendency of Dispersion (Mean, Median, Mode, Standard Deviation, Variance), Skewness and kurtosis, correlation Coefficient, Regression Analysis, Basic Probability Theory, Sampling Theory, Testing of Hypothesis, Data interpretation, Sources of Data on the Indian Education.</p>
13	Centre for Studies in Science Policy (CSSP)	Studies in Science Policy- SSPH (877)	<p>Question in the entrance test will be based on the current affairs on science, technology, innovations and related policy debates. To test the domain knowledge of students, questions based on the various Masters level courses will also be asked. Questions on the various quantitative and qualitative research methods commonly used in social science research will also feature in the entrance test. For more details about our programme and courses, Please visit: http://www.jnu.ac.in/sss/cssp-programme_of_study</p> <p>The Centre is pursuing research in areas/fields such as:</p> <ol style="list-style-type: none"> Science and technology policies including various sectors of economy, S&T in government and S&T policies and development issues in India and other countries; Sociological and Historical Studies on S&T; Social shaping of technology; Scientists in laboratories and organizations; Scientific communities and professionalization of science; Frugal and Grassroots Innovations; Responsible Research and Innovation (RRI); Waste Management; Law, Science and Technology; Cyber & Information Technology Law; Intellectual Property Rights; International S&T Treaties; Economics of technological change and innovation studies; national, sectoral and regional innovation systems; clusters and technological change; Technology Foresight and Assessment; Risk R&D and technology; Technology and hazards including disaster management related to technical change,

			<p>innovation, methodologies, etc.;</p> <p>i) Gender issues in S&T;</p> <p>j) Globalisation and Emerging Technology; TNCs, FDI and impact on R&D; International affairs and relations in S&T for development; Area studies in science and technology policies and development covering developing and developed countries;</p> <p>k) h) Epidemiology, health service structure, health policy analysis, health planning, health economics, biomedical waste management, importance of social sciences in public health, urbanization and health.</p>
14	Centre for Philosophy (CP)	Philosophy-SPHH (878)	<p>Questions would be based on the M.A syllabus taught at the Centre for Philosophy. Please visit http://www.jnu.ac.in/ssss/cop-mphil Each Unit will have 20 percent representation (20%) in the total number of questions.</p> <p>Please note that as per admission policy 50% of questions in the entrance examination for the Ph.D. Program will be from Research Methodology and rest 50% from domain knowledge.</p> <p>Apart from the above the candidate is expected to have sufficient knowledge of the following:</p> <p>UNIT –I</p> <p>Research Methodology:</p> <ol style="list-style-type: none"> 1. Inductive, Deductive and probabilistic reasoning 2. Fallacies formal and informal 3. Logical positivism 4. Dialectics 5. Positivism 6. Hermeneutics 7. Deconstruction s 8. Pragmatism 9. Sceptical method 10. Linguistic analysis 11. Phenomenology and existentialism 12. Thought experiments 13. Principles of Verifiability and Falsifiability 14. Holism and methodological individualism 15. Types of arguments in Indian philosophy 16. Nature of inference (<i>Anumāna</i>) in Indian philosophy 17. Types of inferences 18. Nature of concomitance (<i>vyāpti</i>) according to different schools of Indian philosophy 19. Hypothetical reasoning (<i>arthāpatti</i>) <p>UNIT – II</p> <p>Philosophical Theories and Concepts</p> <ol style="list-style-type: none"> 1. Metaphysics <ol style="list-style-type: none"> i. Theories of mind and consciousness ii. Theories of meaning and truth iii. Realism and anti-realism iv. Freewill: Determinism, Indeterminism and Compatibalism v. Form and matter vi. Theories of Self vii. Theories of Causation viii. Problem of personal identity ix. Problem of other minds

			<ul style="list-style-type: none"> x. Problem of matter xi. Essentialism xii. Atomism xiii. Dualism xiv. Epiphenomenalism xv. Anomalous Monism xvi. Eliminative Materialism xvii. Behaviourism xviii. Substance Dualism xix. Nature of Relations xx. Critique of metaphysics
			<p>2. Epistemology</p> <ul style="list-style-type: none"> i. <i>Theories of perception</i> ii. <i>Theories of knowing</i> iii. <i>Theories of Justification: Internalism and Externalism</i> iv. <i>Gettier Problem</i> v. <i>Definition of knowledge (Pramā) in Classical Indian philosophy</i> vi. <i>Theories of Error in Classical Indian philosophy</i> vii. <i>Sources of knowledge Classical Indian philosophy</i> viii. <i>Theories of Justification in Classical Indian philosophy (pramānyavāda)</i> <p>UNIT –III</p> <p>Ethics</p> <ul style="list-style-type: none"> a. Normative Ethics <ul style="list-style-type: none"> i. Consequentialism ii. Kantian Deontology iii. Virtue Theoretical Ethics iv. Contractarianism and Contractualism v. Natural Rights Theory vi. Feminist Ethics b. Theories of Metaethics <ul style="list-style-type: none"> i. Cognitivism and Non-cognitivism ii. Moore's Non-naturalism iii. Error Theory iv. Prescriptivism v. Relativism vi. Moral Realism and anti-realism c. Applied Ethics <ul style="list-style-type: none"> i. Bio-medical Ethics ii. Animal Ethics iii. Theories of Punishment iv. Environmental Ethics v. Business Ethics d. Indian Ethical Tradition <ul style="list-style-type: none"> i. Mīmāṃsā Theory of <i>Dharma</i>, <i>itikartavyatābodha</i>, <i>artha</i> and <i>bhāvnā</i>, ii. Buddhist Ethics iii. Jaina Ethics iv. Theory of Obligation in Bhagvad Gītā <p>UNIT- IV</p> <p>Social and Political Philosophy</p> <ul style="list-style-type: none"> a. Political Ideas: Equality, Justice, Liberty, Freedom, Rights

			<ul style="list-style-type: none"> b. Individual and State c. Democracy d. Socialism e. Marxism f. Secularism g. Sarvodaya h. Gender equality i. Contemporary theories and debates: Utilitarianism, Rawls's Justice as Fairness, j. Libertarianism, Communitarianism, Political liberalism, Multiculturalism, Feminism <p>UNIT -V</p> <p>Contemporary Indian Philosophy:</p> <ul style="list-style-type: none"> i. Gandhi, Ambedkar, Tagore, Aurobindo, Vivekananda ii. Gandhi Tagore Debate iii. Gandhi Ambedkar Debate iv. Radhakrishnan v. K. C. Bhattacharyya vi. Jyotiba Phule vii. Mohammad Iqbal viii. Amartya Sen
15	Centre for Women Studies (CWS)	Women Studies –WSPH (879)	<p>Since Women's Studies is interdisciplinary in nature, the entrance exam will expect candidates to bring their disciplinary and interdisciplinary training in historical, political, economic, sociological, cultural, literary and representational perspectives in the way women, gender, and sexuality have been constituted as objects of study. Students are expected to have a thorough understanding of the relationship between gender and other analytical categories like class, caste, ethnicity, sexuality, community and nationality not only in a national, but also a cross cultural and transnational context. The candidates are expected to be broadly aware of different dimensions of women, gender and sexuality studies in Feminist Theory; Women's Movements; Gender, Labour and Political Economy; Sexuality Studies; Law; Politics; Development; Globalization and its implications; Religion and Faith Practices; Caste, Ethnicity and Race; Gender and Space; Culture and Modernity; Literature, Art and Performance, and Visuality Studies.</p> <p>Candidates are expected to have knowledge of feminist methodology, especially qualitative research methods such as ethnography, discourse analysis, oral history, archival research, and literary methods, but not just limited to these.</p>
16	Centre for the Study of Social Exclusion and Inclusive Policy	Social Exclusion and Inclusive Policy - SEIH (880)	<p>The examination will deal with topics which are covered in any standard Masters level course pertaining to History, Anthropology, Economics, Political Science and Sociology.</p> <p>In addition, the candidates are expected to have comprehensive understanding on the various dimensions of discrimination and exclusion faced by Scheduled Castes (SC), Scheduled Tribes (ST) Gender, Disability Exclusion in terms of different social aspects and various Minority groups in India. The interpretation of these societal dimensions can only be understood through a proper knowledge of research methodology. The definition of research methodology in itself is a difficult task, divided in terms of approaches ranging from the qualitative to quantitative. In addition to research methods the candidate acquainted in their respective subject at the Master level, is also expected to be familiar with the methods and measurement of exclusion and inclusion.</p> <p>The candidates are expected to be aware of analysis based on large datasets published periodically by the Government and non-governmental agencies. These would include, but not limited to, Decennial Census reports, National Sample Survey Organisation reports (NSSO), National Family and Health Surveys (NFHS), National Crime Records Bureau reports (NCRB) and other alternative reports covering issues of discrimination and exclusion like Sachar Committee Report, Indian Exclusion</p>

			reports, International Organisational reports like UN, ILO etc. Further the candidates should be aware of reports published by National Commission for Scheduled Castes (NCSC), National Commission for Scheduled Tribes (NCST), National Commission for Backward Classes (NCBC), National Human Rights Commission (NHRC). The candidates should have an indepth understanding of various facets of the Indian Constitution, Governmental policies for inclusion and developmental schemes addressing the issues of inter-sectionality of Gender, SCs, STs, disabled and Minority groups.
17	Centre for Media Studies (CMS)	Media Studies-CMSH (881)	<p>Envisaged primarily as a centre for research and academic study, the Centre for Media Studies has been teaching and researching in the fields of media studies, which include: Histories of media, Political economy of Media, Media and issues of language, Media democracy and dimensions of rights and justice, violence and media, Media technologies and cultural industries, Media and the nature of connectivities, visual culture, theories and methods in media studies.</p> <p>The syllabus for the <i>Entrance Examination</i> therefore is carefully prepared to harmonise the broader perspective on Media Studies as envisioned by the Centre and the pedagogic and professional needs in Media studies. It covers the evolution and contemporary nature of media in its myriad forms, i.e., print, visual, electronic and digital, etc. The candidates are expected to have comprehensive understanding of media studies:- history, growth and development of print and electronic media; production content, models and theories of Media effect; Communication for development and social change; language and nature of reporting and principles and practices of editing; role of news rooms; the nature of persuasion and advertising; Corporate communication; Media laws and ethics; Constitution of India: its historical evolution and its importance. It also will have components of visual media covering television and film studies and will include the fundamental dimensions of language, aesthetics and movements in world as well as Indian Cinema. Knowledge of the modern day media management and production, ICT and media is also expected. The candidates are expected to be aware of media research methods in social sciences which includes, apart from qualitative and quantitative methods and various research techniques, critical discussions on language and ethics in media studies.</p> <p>The programme encourages working on the themes related to media studies.</p>

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
18	Group of Adult Education (GAE)	Adult Education-GAEH (883)	We insist that the student/candidates should have exposure, understanding and knowledge in wide ranging issues related to adult, continuing education and extension. The main thrust areas include 'Literacy studies' (e.g., basic literacy, adult literacy, digital literacy, financial literacy, consumer literacy, legal literacy, health family, media, citizenship literacy etc.), adult, lifelong education, vocational/skill education, sustainable livelihood education, entrepreneurship education and other related continuing education in India and abroad. Moreover, GAE focuses on problems of contemporary youth & their lifestyles; the impact of globalization and market practices on the local communities and society with special emphasis on consumer rights, movements and awareness. We try to enrol students who have interest do research in areas of formal/non-formal education, policy studies and practice in all these areas. GAE makes special efforts in enhancing learning, and improving professionalism among the students in social and education sectors to play constructive roles in nation-building.
19	Centre for Informal Sector & Labour Studies (CISL)	Informal Sector & Labour Studies- ISLH (884)	The test is intended to evaluate the candidate's general awareness in the following areas. The Ph.D. programme focuses on interdisciplinary research on Indian informal sector and labour scenario. The programme encourages to work on themes such as—Political Economy of State, Development and Underdevelopment in the contemporary world, Labour History, Globalization and the changing forms of Labour, Global Production Systems, Informalisation in various sectors, Labour Market, Forms of Employment, Poverty, Migration, Urbanisation, Labour Rights and Regulation, Workers' Organizations and Politics, Trade Unions, Resistance, Peasant Production, Non-farm Economy, Agrarian Change and Rural Development,

		Political Economy of Care, Discrimination on the basis of Caste, Gender and Community, Common Property Resources, Public Policies in the Unorganised Sector, and Sustainable Development. The objective of the programme is to enable students to understand the linkages between the formal and the informal sectors and between theory and empirical investigations in research work.
--	--	---

5. SCHOOL OF ENVIRONMENTAL SCIENCES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Environmental Sciences (SES)	Research Area I- ONEH (885)	All questions would be of the multiple choice type. The questions will be divided into two parts: Part-A
2		Research Area II- TWOH (886)	This part will have questions on Research Methodology broadly covering the topics such as Judging the ability of Searching libraries, web-based information etc., Structuring of articles, referencing etc., Describing visual, audio or written images, Writing review of book/Report etc., importance of seminar/workshop/conference, General idea of plagiarism, Concept of logbook, workbook, field book etc., Names of journals, Important publishers, Site selection criteria, sample number criteria, sample storage methods, sample extraction and digestion methods, Mean, median, mode, standard deviation, standard error, correlation, time series, scatter plots, bars, line diagram, error bars, area plots, contours etc., Accuracy, precision, null hypothesis, errors, uncertainty, Knowledge about software: statistical, GIS and RS etc.
3		Research Area III- THRH (887)	
4		Research Area IV- FORH (888)	
			Part-B This part will have questions of M.Sc. level from Physics, Chemistry, Geology, Biology and Environmental Sciences.

6. SCHOOL OF COMPUTER & SYSTEMS SCIENCES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

The School will have two separate streams namely "Computer Science" stream and "Microsystems" stream in the JNU entrance examination for the admissions to the PhD programme. An applicant for the PhD programme should clearly mention only one stream in the application form. The candidature of those applying for both the streams is likely to be rejected. Therefore, the applicants are advised in their own interest not to apply for both the streams. Admission is offered to candidates based on their performance in the Computer Based Test (CBT) and the viva-voce examination, as per University rules. In the entrance examination, besides the common part (PART A), the applicants must answer questions only for the part meant for their choice of stream (PART B). On the basis of the candidates' performance in the entrance examination and as per University rules, the candidates would be called for the viva-voce examination. Separate viva-voce

examination would be conducted for "Computer Science" stream and "Microsystems" stream. Admission to the PhD Programme will be based on the merit in entrance and viva-voce examination.

Sl. No.	Name of School	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	School of Computer & Systems Sciences (SC&SS)	Computer Science - SCSH (890) Microsystems - MISH (915)	50% of the questions will be from Research Methodology and remaining from the other specified topics. PART A Common Syllabus for the Computer Science and Microsystems Stream: Research Methodology: Experimental Design; Fundamentals of Sampling; Data: types, quality measurement; Processing and Analysis of data; Hypothesis Testing (parametric, non-parametric), Theory of Probability. Mathematics: Integral and Differential Calculus, Linear Algebra, Numerical Analysis, Modern Algebra. PART B Specific Syllabus for the Computer Science Stream: Data Structures and Algorithms, Programming Languages (C, C++), Operating Systems, Discrete Mathematics, Automata Theory, Computer Architecture, Computer Networks, Database Management System. Specific Syllabus for the Microsystems Stream: Digital logic, electrons in solids, energy band theory, charge carriers in semiconductors, drift-diffusion theory, p-n junctions, MOS transistor, Basics of CMOS analog circuits, Basics of CMOS digital VLSI circuits, Basics of MEMS and VLSI Technology.

7. SCHOOL OF PHYSICAL SCIENCES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Physical Sciences (SPS)	Mathematical Sciences – MATH (897)	Analysis: The structure of the real numbers as an ordered field with the least upper bound property, archimedean property, Bolzano-Weierstrass theorem, Heine-Borel theorem, extended real number system, complex field, Euclidean spaces. Definition and examples of metric spaces, completeness, compactness, connectedness, continuous functions and related properties. Convergence of sequences in a metric space, subsequences, Cauchy sequences. Limits of functions, continuity of functions, uniform continuity, continuity and compactness, continuity and connectedness. Pointwise and uniform convergence, uniform convergence and continuity, uniform convergence and integration, uniform convergence and differentiation, equicontinuity, Arzela-Ascoli theorem, Stone-Weierstrass theorem. Differentiation of functions of several real variables (directional derivatives, partial derivatives, differentiability and the total derivative, chain rule, Jacobian, higher derivatives, interchange of the order of differentiation, Taylor's theorem), inverse function theorem, implicit function theorem, rank theorem, differentiation of integrals. Lebesguemeasure and Lebesgue integral, convergence Theorems. Linear Algebra: Vector Spaces, subspaces, linear independence, bases, dimension, algebra of linear transformations, rank-nullity theorem, dual spaces, double dual, eigenvalues and eigenvectors, characteristic polynomial and minimal polynomial, Cayley-Hamilton

		<p>theorem. Diagonalizability and diagonalization, primary decomposition theorem, generalized eigenvectors, Jordan canonical form, rational canonical form. Bilinear forms, symmetric and skew-symmetric bilinear forms, groups preserving bilinear forms, reduction and classification of bilinear forms.</p> <p>Algebra: Definition and examples of groups - dihedral, symmetric and permutations groups, matrix groups such as $GL(n)$, $SL(n)$, abelian and cyclic groups, subgroups, normal subgroups, quotient groups, centralizer and normalizer of a group, Lagrange's theorem, isomorphism theorems, group actions, class equation, counting orbits, Cayley's theorem, Sylow's theorems, simplicity of alternating groups. Rings and subrings, isomorphisms, ideals, prime and maximal ideals, quotient rings, polynomial rings, unique factorization domain, principal ideal domain, Euclidean domain, Gauss's lemma, irreducibility criteria. Definition and examples of fields, extension of fields, finite and infinite extensions, algebraic and transcendental extensions, homomorphisms, isomorphisms and automorphisms, separable and normal extensions, splitting field of a polynomial, extending field morphisms, algebraic closure of a field, finite fields, cyclicity of the multiplicative group of a finite field, Galois theory.</p> <p>Complex Analysis: Algebra of complex numbers, conjugates, modulus, argument, roots. Continuity and derivative of a function of one complex variable, holomorphic functions, Cauchy-Riemann equations, harmonic functions. Polynomial and rational functions, transcendental functions such as exponential, trigonometric and hyperbolic functions, logarithm. Paths and contours, contour integral, Cauchy's theorem, Cauchy's integral formula, Liouville's theorem, fundamental theorem of algebra, maximum modulus principle, open mapping theorem, Schwarz's lemma, Taylor series and Laurent series. Classification of singularities, orders or zeros and poles, winding number, meromorphic functions, Cauchy's residue theorem, computation of definite integrals using residue theorem, argument principle. Linear fractional transformations, conformal mappings.</p> <p>Topology: Definition and examples of topological spaces, basis and subbasis of a topological space, subspace topology, limit points, closure and interior, continuous functions, homeomorphisms, product topology, metric topology, quotient map and quotient topology. Connectedness, path-connectedness, compactness, local compactness and one point compactification. First and second countable spaces, separable spaces, separation axioms, Urysohn lemma, Tietze extension theorem, Tychonoff theorem and Stone-Čech compactification.</p> <p>Functional Analysis: Examples of normed spaces (sequence spaces: c, c_0, l_p spaces; function spaces: $C[0, 1]$, $C(R)$, $L_p([0, 1])$, $L_p(R)$), finite dimensional normed spaces, continuous linear maps, Hahn-Banach Theorem, Hilbert spaces, inner product, linear functionals, orthonormal sets.</p> <p>Research Methodology: Elementary set theory, finite, countable and uncountable sets, logic, relations and functions, axioms. Elementary combinatorics, combinatorial probability, pigeon-hole principle, inclusion-exclusion principle.</p> <p>Miscellaneous Topics: Fundamental theorem of arithmetic, divisibility</p>
2	Physical Sciences – PHYH (898)	<p>I. Mathematical Physics Linear vector spaces. Eigen values and eigen vectors. Linear ordinary differential equations of first & second order. Special functions. Partial differential equations. Green's function. Fourier and Laplace transforms. Complex analysis: analytic functions, poles and residues, series expansion, and evaluation of integrals.</p> <p>II. Classical Mechanics Lagrangian and Hamiltonian formalism. Equations of motion. Central force problem. Conservation laws. Small oscillations and normal modes. Special theory of relativity.</p> <p>III. Electromagnetic Theory Gauss's law. Laplace and Poisson equations, boundary value problems. Ampere's law. Electromagnetic induction. Maxwell's equations. Scalar and vector potentials. Gauge invariance. Conservation laws for electromagnetic fields. Electromagnetic waves in free space. Dielectrics and conductors.</p>

		<p>Reflection and refraction of electromagnetic waves. Dynamics of charged particles in static and uniform electromagnetic fields.</p> <p>IV. Quantum Mechanics Wavefunctions and operators. Heisenberg uncertainty principle. Schrödinger equation (time-dependent and time-independent). Eigenvalue problems (particle in a box, harmonic oscillator, hydrogen atom). Tunneling. Orbital and spin angular momenta. Addition of angular momenta. Time-independent perturbation theory. Variational method. Time dependent perturbation theory: Fermi's golden rule and selection rules. Identical particles and indistinguishability.</p> <p>V. Thermodynamics and Statistical Physics Laws of thermodynamics and their consequences. Thermodynamic potentials. Legendre transformation. Maxwell relations. Chemical potential, phase equilibria. Micro-canonical, canonical and grand-canonical ensembles and partition functions. Free energy and its connection with thermodynamic quantities. Classical and quantum statistics. Ideal Bose and Fermi gases. Blackbody radiation and Planck's distribution. First- and second-order phase transitions.</p> <p>VI. Atomic & Molecular Physics Quantum states of electrons in an atom. Relativistic corrections of atomic energy levels. LS & JJ couplings. Zeeman, Paschen-Bach & Stark effects. Magnetic resonance. Born-Oppenheimer approximation. Electronic, rotational, vibrational and Raman spectra of diatomic molecules. Lasers: spontaneous and stimulated emission, Einstein A & B coefficients. Optical pumping, population inversion, rate equation.</p> <p>VII. Condensed Matter Physics Bravais lattices. Reciprocal lattice. Diffraction and structure factor. Bonding of solids. Elastic properties, phonons, lattice specific heat. Free electron theory of metals and electronic specific heat. Drude model of electrical and thermal conductivity. Hall effect and thermoelectric power. Band theory of solids: metals, insulators and semiconductors. Superconductivity: Type-I and type-II superconductors. Magnetism: types of magnetic ordering and Curie-Weiss law.</p> <p>VIII. Nuclear and Particle Physics Basic nuclear properties: size, shape and charge distribution, spin and parity. Binding energy, semi-empirical mass formula, liquid drop model. Nuclear force. Single-particle shell model, its validity and limitations. Rotational spectra. Elementary ideas of alpha, beta and gamma decays and their selection rules. Fission and fusion. Nuclear reactions. Classification of fundamental forces. Elementary particles and their quantum numbers (charge, spin, parity, isospin, strangeness, etc.).</p> <p>IX. Electronics Semiconductor devices (diodes, junctions, transistors, and field effect devices), device characteristics. Operational amplifiers and their applications. Digital techniques and applications (registers, counters, comparators and similar circuits).</p> <p>X. Research Methodology and Experimental Methods Data analysis. Error estimation. Measurement of electrical resistivity, Hall coefficient, magnetic susceptibility and thermal conductivity. Interference and diffraction experiments. Spectroscopic measurements such as Zeeman effect, Electron Spin Resonance, and Raman effect. Experimental determination of fundamental constants such as Planck's constant, e/m, and Boltzmann constant.</p>
3	Chemical Sciences – CHEH (899)	<p>Research Methodology Analytical chemistry, chromatographic separation, crystallization, spectroscopic techniques, electro-and thermoanalytical methods. Data analysis: Mean and standard deviation; absolute and relative errors; linear regression; covariance and correlation coefficient.</p> <p>Organic Chemistry 1. IUPAC nomenclature of organic molecules including regio - and stereoisomers. 2. Principles of stereochemistry: Configurational and conformational isomerism in acyclic and cyclic compounds; stereogenicity, stereoselectivity, enantioselectivity, diastereoselectivity and asymmetric induction. 3. Aromaticity: Benzenoid and non - benzenoid compounds – generation and reactions. 4. Organic reactive intermediates: Generation, stability and reactivity of carbocations,</p>

		<p>carbanions, free radicals, carbenes, benzyne and nitrenes.</p> <p>5. Organic reaction mechanisms involving addition, elimination and substitution reactions with electrophilic, nucleophilic or radical species. Determination of reaction pathways.</p> <p>6. Common named reactions and rearrangements – applications in organic synthesis.</p> <p>7. Organic transformations and reagents: Functional group interconversion including oxidations and reductions; common catalysts and reagents (organic, inorganic, organometallic and enzymatic). Chemo, regio and stereoselective transformations.</p> <p>8. Concepts in organic synthesis: Retrosynthesis, disconnection, synthons, linear and convergent synthesis, umpolung of reactivity and protecting groups.</p> <p>9. Asymmetric synthesis: Chiral auxiliaries, methods of asymmetric induction – substrate, reagent and catalyst controlled reactions; determination of enantiomeric and diastereomeric excess; enantio-discrimination. Resolution – optical and kinetic.</p> <p>10. Pericyclic reactions – electrocycloisatation, cycloaddition, sigmatropic rearrangements and other related concerted reactions. Principles and applications of photochemical reactions in organic chemistry.</p> <p>11. Synthesis and reactivity of common heterocyclic compounds containing one or two heteroatoms (O, N, S).</p> <p>12. Chemistry of natural products: Carbohydrates, proteins and peptides, fatty acids, nucleic acids, terpenes, steroids and alkaloids. Biogenesis of terpenoids and alkaloids.</p> <p>13. Structure determination of organic compounds by IR, UV - Vis, ^1H & ^{13}C NMR and Mass spectroscopic techniques.</p> <p>Inorganic Chemistry</p> <p>1. Chemical periodicity: Classification of elements and periodicity in properties.</p> <p>2. Molecular Structure and Bonding: Valence bond theory, molecular orbital Theory, VSEPR theory.</p> <p>3. Acids and Bases: Lewis acids and bases, HSAB concept, Gas phase versus solution acidity, Solvent levelling effects, Surface acidity.</p> <p>4. Oxidation and Reduction: Analysis of redox cycles, Redox stability in water, Disproportionation/Comproportionation, Frost, Latimer and Pourbaix diagrams.</p> <p>5. Main group elements and their compounds: Allotropy, synthesis, structure and bonding, industrial importance of the compounds.</p> <p>6. Transition elements and coordination compounds: structure, bonding theories, spectral and magnetic properties, reaction mechanisms.</p> <p>7. Inner transition elements: spectral and magnetic properties, redox chemistry, analytical applications.</p> <p>8. Organometallic compounds: synthesis, bonding and structure, and reactivity. Organometallics in homogeneous catalysis.</p> <p>9. Cages and metal clusters.</p> <p>10. Bioinorganic chemistry: photosystems, porphyrins, metalloenzymes, oxygen transport, electron-transfer reactions; nitrogen fixation, metal complexes in medicine.</p> <p>11. Nuclear chemistry: nuclear reactions, fission and fusion, radio- analytical techniques, activation analysis, principles of determination of age of rocks and minerals, and Radio-carbon dating.</p> <p>12. Characterisation of inorganic compounds by IR, Raman, NMR, EPR, Mössbauer, UV-vis, NQR, MS, electron spectroscopy and microscopic techniques.</p> <p>Physical Chemistry</p> <p>1. Basic principles of quantum mechanics: Postulates; operator algebra; exactly-solvable systems: particle-in-a-box, harmonic oscillator and the hydrogen atom, including shapes of atomic orbitals; orbital and spin angular momenta; tunnelling.</p> <p>2. Approximate methods of quantum mechanics: Variational principle; perturbation theory up to second order in energy; applications.</p> <p>3. Atomic structure and spectroscopy; term symbols; many-electron systems and antisymmetry principle.</p> <p>4. Chemical bonding in diatomics; elementary concepts of MO and VB theories; Huckel theory for conjugated π-electron systems.</p> <p>5. Chemical applications of group theory; symmetry elements; point groups; character tables; selection rules.</p> <p>6. Molecular spectroscopy: Rotational and vibrational spectra of diatomic molecules; electronic spectra; IR and Raman activities – selection rules; basic principles of magnetic resonance.</p> <p>7. Chemical thermodynamics: Laws, state and path functions and their applications;</p>
--	--	---

			<p>thermodynamic description of various types of processes; Maxwell's relations; spontaneity and equilibria; temperature and pressure dependence of thermodynamic quantities; Le Chatelier principle; elementary description of phase transitions; phase equilibria and phase rule; thermodynamics of ideal and non-ideal gases, and solutions.</p> <p>8. Statistical thermodynamics: Boltzmann distribution; kinetic theory of gases; partition functions and their relation to thermodynamic quantities—calculations for model systems.</p> <p>9. Electrochemistry: Nernst equation, redox systems, electrochemical cells; Debye-Huckel theory; electrolytic conductance – Kohlrausch's law and its applications; ionic equilibria; conductometric and potentiometric titrations.</p> <p>10. Chemical kinetics: Empirical rate laws and temperature dependence; complex reactions; steady state approximation; determination of reaction mechanisms; collision and transition state theories of rate constants; unimolecular reactions; enzyme kinetics; salt effects; homogeneous catalysis; photochemical reactions.</p> <p>11. Colloids and surfaces: Stability and properties of colloids; isotherms and surface area; heterogeneous catalysis.</p> <p>12. Solid state: Crystal structures; Bragg's law and applications; band structure of solids.</p> <p>13. Polymer chemistry: Molar masses; kinetics of polymerization.</p>
--	--	--	---

8. SCHOOL OF COMPUTATIONAL AND INTEGRATIVE SCIENCES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Computational and Integrative Sciences (SC&IS)	Computational Biology and Bioinformatics – Track 1 – TROH (903); Track 2 – TRTH (909) & Track 3 – TRDH (910)	<p>(Separate merit lists of students for Track 1 (Physical sciences), Track 2 (Biological Sciences) and Track 3 (Mathematical and Computer sciences) will be used for final admissions. The categorization in Tracks will be based on students' choice in the application form depending on his/her academic background.</p> <p>The Ph.D course will have a single entrance test with the following break up.</p> <p>Part A: General reasoning,</p> <p>Part B: Subject specific, comprising six sections.</p> <p>The syllabus for respective sections is as follows:</p> <p>Part A: General Reasoning</p> <p>This part of the question paper is to assess the analytical and quantitative skills of the students acquired throughout their academic career.</p> <p>Part B: This part of the question paper is to assess the domain knowledge of the students. It comprises six sections corresponding to six different disciplines, namely physics, chemistry, bioinformatics, life sciences, mathematics, and computer science that are further categorized into three tracks as below.</p> <p>Track 1: Physics, Chemistry</p>

		<p>Track 2: Bioinformatics, Life Science</p> <p>Track 3: Mathematics, Computer Science</p> <p>Students are required to attempt a total of two sections out of the six available, among which at least one section from the chosen track is mandatory.</p> <p>Section 1: <u>Physics:</u></p> <p>Mathematical Physics: Linear vector space; matrices; vector calculus; linear differential equations; elements of complex analysis; Laplace transforms, Fourier analysis, elementary ideas about tensors. Classical Mechanics: Conservation laws; central forces, Kepler problem and planetary motion; collisions and scattering in laboratory and Centre of mass frames; mechanics of system of particles; rigid body dynamics; moment of inertia tensor; noninertial frames and pseudo forces; variational principle; Lagrange's and Hamilton's formalisms; equations of motion, cyclic coordinates, Poisson bracket; periodic motion, small oscillations, normal modes; special theory of relativity – Lorentz transformations, relativistic kinematics, mass- energy equivalence.</p> <p>Electromagnetic Theory: Solution of electrostatic and magnetostatic problems including boundary value problems; dielectrics and conductors; Biot-Savart's and Ampere's laws; Faraday's law; Maxwell's equations; scalar and vector potentials; Coulomb and Lorentz gauges; Electromagnetic waves and their reflection, refraction, interference, diffraction and polarization. Poynting vector, Poynting theorem, energy and momentum of electromagnetic waves; radiation from a moving charge.</p> <p>Quantum Mechanics: Physical basis of quantum mechanics; uncertainty principle; Schrodinger equation; one, two and three dimensional potential problems; particle in a box, harmonic oscillator, hydrogen atom; linear vectors and operators in Hilbert space; angular momentum and spin; addition of angular momenta; time independent perturbation theory; elementary scattering theory.</p> <p>Thermodynamics and Statistical Physics: Laws of thermodynamics; macrostates and microstates; phase space; probability ensembles; partition function, free energy, calculation of thermodynamic quantities; classical and quantum statistics; degenerate Fermi gas; black body radiation and Planck's distribution law; Bose-Einstein condensation; first and second order phase transitions, critical point.</p> <p>Atomic and Molecular Physics: Spectra of one- and many-electron atoms; LS and jj coupling; hyperfine structure; Zeeman and Stark effects; electric dipole transitions and selection rules; X-ray spectra; rotational and vibrational spectra of diatomic molecules; electronic transition in diatomic molecules, Franck- Condon principle; Raman effect; NMR and ESR; lasers.</p> <p>Section 2: <u>Chemistry:</u></p> <p>Organic Chemistry, Stereochemistry</p> <p>Properties of gases, kinetic theory</p> <p>Thermodynamics</p> <p>Chemical Bonding, Oxidation states, electrochemistry</p> <p>Molecular Structure, spectroscopy</p> <p>Chemical Kinetics</p> <p>Quantum Mechanics</p> <p>Statistical Mechanics</p> <p>Section 3: <u>Life Sciences/Biotechnology</u></p> <p>Biomolecules & Cellular Organization, Fundamental Processes, Basic Concepts in Genetics & Immunology, Developmental Processes, Genome Structure & Organization, Gene Expression and Regulation, Basic Techniques in Molecular Biology and Recombinant DNA Technology</p>
--	--	---

Section 4: Bioinformatics

Sequence analysis and alignment algorithms, Phylogenetic Analysis, Databases, Sequencing Technologies, Structural Bioinformatics, Concepts in sequence analysis, Genomics and Transcriptomics, Sequencing methods, Sequence formats, Methods of gene expression profiling, Genetic/epigenetic variations

Section 5: Mathematics

Hydrodynamics: Classification of fluids, the continuum model, Lagrangian and Eulerian approach of description. Lagrangian and Eulerian methods. Equation of continuity. Boundary surface. Stream lines. Path lines and streak lines. Velocity potential. Irrotational and rotational motions. Vortex lines, vorticity vector, equi-potential surface streamlines, pathlines, Mass flux density, conservation of mass leading to equation of continuity, conservation of momentum and its mathematical formulation, Lagrange's and Euler's equations of motion, Bernoulli's theorem, Equation of motion by flux method. Equations referred to moving axes, Impulsive actions, Stream function. Viscous flow, stress and strain analysis, stokes hypothesis, The Navier-stokes equation of motion, Poiseuille flow.

Advanced Differential Equations: Existence and uniqueness theorem, Sturm comparison and separation theorem, homogeneous linear system, Nonhomogeneous linear system, linear system with constant coefficient. Two-point boundary value problems, Green function, Construction of green function, Sturm-Liouville system, Non-linear Differential Equation, Solution of PDEs by method of integral transforms (Laplace and Fourier), Boundary value problem, Maxima and minimum principles, Uniqueness and continuity Theorem.

Special Function: Calculus of Variation-Functional and its properties, Variational problems with fixed boundaries, Legendre polynomial and functions, Christoffel's summation formula, Bessel's Function, Modified Bessel's function, Bessel's equations. Hermite polynomials, Laguerre polynomials.

Linear Algebra: Vector spaces, Sub spaces, linearly dependent & linearly independent vectors, Basis, Dimension, linear transformation, Matrix representation of a linear transformation, Rank & Nullity theorem.

Finite dimensional vector spaces, Existence theorem for basis, Quotient space and its dimension. Rank of a matrix, Eigen values & Eigen vectors. Change of basis, Canonical forms, Diagonal forms, Triangular forms, Jordan forms, Quadratic forms, reduction and classification of quadratic forms, Orthogonal transformations, Unitary transformations, Positive semi definite matrices, Semi definite matrices.

Operational Research and Networking: Introduction to Linear Programming. Problem formulations. Linear independence and dependence of vectors. Convex sets. Extreme points. Hyperplanes and Half spaces. Directions of a convex set. Convex cones. Polyhedral sets and cones. Theory of Simplex Method. Simplex Algorithm. Transportation problem. Assignment problem.

Graph Theory and Petri nets: Selected topics in graph theory: basic definitions and notions, characterization of trees, vector vacuum of a graph, planarity of graphs, Hamiltonian and Eulerian cycles. Edge – and vertex colourings of graphs: chromatic number, chromatic index, map colour theorem, four – colour problem. Independence theory in combinatory. Directed digraphs. Flow networks. Applications. Petri nets and their types.

Probability and Statistics: Measures of central tendency and dispersion, Skewness and kurtosis, Probability, Conditional probability, Theorem of total probabilities, Bayes theorem, Random variables, Probability mass and density functions, Mathematical expectation and its properties, Moment generating functions, Binomial, Poisson, Geometric, Exponential and Normal distributions and their properties, Method of least squares, Correlation and regression.

Section 6: Computer Science and Programming

Computer Organization and Architecture

Machine instructions and addressing modes. ALU, data-path and control unit. Instruction pipelining. Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode).

			<p>Programming and Data Structures</p> <p>Programming in C. Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.</p> <p>Algorithms</p> <p>Searching, sorting, hashing. Asymptotic worst case time and space complexity. Algorithm design techniques: greedy, dynamic programming and divide-and-conquer. Graph search, minimum spanning trees, shortest paths.</p> <p>Theory of Computation</p> <p>Regular expressions and finite automata. Context-free grammars and push-down automata. Regular and context-free languages, pumping lemma. Turing machines and undecidability.</p> <p>Compiler Design</p> <p>Lexical analysis, parsing, syntax-directed translation. Runtime environments. Intermediate code generation.</p> <p>Operating System</p> <p>Processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU scheduling. Memory management and virtual memory. File systems.</p> <p>Databases</p> <p>ER-model. Relational model: relational algebra, tuple calculus, SQL. Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees). Transactions and concurrency control.</p> <p>Computer Networks</p> <p>Concept of layering. LAN technologies (Ethernet). Flow and error control techniques, switching. IPv4/IPv6, routers and routing algorithms (distance vector, link state). TCP/UDP and sockets, congestion control. Application layer protocols (DNS, SMTP, POP, FTP, HTTP). Basics of Wi-Fi. Network security: authentication, basics of public key and private key cryptography, digital signatures and certificates, firewalls.</p>
--	--	--	--

9. SCHOOL OF ARTS & AESTHETICS

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Arts & Aesthetics (SA&A)	Ph.D. : Visual Studies – VSAH (900)	<p>Note: The programme is suited for students who come from a background in Visual Studies/ Art History and related disciplines. Candidates are expected to already be familiar with the discipline of art history and its theoretical concerns in general and with the development of Indian art and architecture in particular. To appear for the entrance exam, prospective candidates should have a broad understanding of the intellectual history of the discipline and key philosophical concerns of image theories. They should be familiar with the topics listed below which are areas covered by Masters-level programmes. Questions set by the School are designed to assess the candidate's ability to reflect upon and critically engage with themes and issues related to art and visual culture.</p> <p>Candidates appearing for the entrance examination should be familiar with the following:</p>

			<p>Contribution of theorists whose work has shaped/ impacted art historical, critical and anthropological discourse on the visual arts and visual culture.</p> <p>Research Methodology and Historiography of the discipline: art criticism and art history writing and archival structures as subjects of inquiry and meta-critical practices.</p> <p>Artworks as modes of symbolic communication and methodologies of decipherment of visual codes and visual language systems.</p> <p>Methodological approaches to interpreting the visual: iconography, semiotics, formalism, cultural materialism, psychoanalysis, narratology, phenomenology, affect theory, theories of gender, feminist and post-colonial critiques.</p> <p>The entanglements of ethno-nationalism and art history</p> <p>The interrelationship of textual and visual traditions in Indian art.</p> <p>The social and political and conditions that govern the agency of art and artists and impact visual representations.</p> <p>The relationship between political, economic and liturgical institutions and monumental built forms.</p> <p>Current debates about the agency and representation of caste, class and gender in pre-modern arts.</p> <p>Capitalism, individualism and the relationship with artistic authorship.</p> <p>Debates around authorship in Indian art.</p> <p>Concepts of space and place in architecture and spatiotemporal understanding of built form including relationships between architecture and ritual performance.</p> <p>The network of institutional agencies in which art works are embedded. Institutional critique and its own institutionalization.</p> <p>Iconophilia, iconopraxis and iconoclasm.</p> <p>Sectarian competitiveness and the “clash of icons.”</p> <p>Technologies of art-making, intentionalities of choice and theoretical understanding of creative labour.</p> <p>Interactivity, community art and relational aesthetics in contemporary visual culture.</p> <p>The construction of heritage vis a vis national and global framework.</p> <p>Photography theory, digital convergence and “remediation”.</p>
2		Ph.D. : Theatre & Performance Studies- TPSH (901)	<p>Note: Theatre and Performance Studies covers a wide range of subjects, including the history of theatre, dance and music with a particular focus on the study of embodied performance. Students appearing for the entrance exam for the Theatre and Performance Studies stream should have some broad knowledge of the intellectual concerns and issues linked to the discipline. They should be familiar with the topics listed below which are areas covered by Masters level programmes. Questions set by the School are designed to assess the candidate's ability to reflect upon and critically engage with themes and issues related to theatre and performance.</p> <p>Candidates appearing for the entrance examination should be familiar with the following:</p> <p>Concepts related to performance and aesthetics, such as <i>rasa</i>, <i>dhvani</i>, catharsis, tragedy, alienation, corporeality, embodiment, liminality, efficacy;</p> <p>Basic knowledge and understanding of the discourse around primary texts such as <i>Natyasastra</i>, <i>Dhvanyaloka</i>, <i>Abhinaya Darpana</i> and <i>The Poetics</i>;</p> <p>Institutions of performance such as National School of Drama, Sangeet Natak Akademi, Ninasam, Kalakshetra, Kalamandalam;</p> <p><i>Sufi</i> and <i>bhakti</i> performing arts traditions;</p> <p>Regional culture and performance practices (theatre, dance, music, puppetry and others) in India;</p> <p>Histories and theories of political theatre;</p> <p>Histories of Indian musical traditions;</p> <p>Histories of traditions and transitions in dance;</p> <p>Feminism, gender and performance;</p> <p>Comic traditions in performance;</p> <p>Nation, nationalism and performance;</p> <p>Post-colonial performances;</p> <p>Debates in modern Indian theatre, music and dance.</p> <p>Applied theatre and performance;</p> <p>Street theatre;</p> <p>Globalisation and performance;</p> <p>Performance art</p> <p>Discourses, theories and research methodologies around the emergence of disciplines of</p>

			theatre and performance studies, dance studies, music studies.
3		Ph.D. : Cinema Studies - CNSH (902)	<p><u>Note:</u> The programmes draw students either from a background in Cinema/Film Studies or from other disciplines with an interest in the subject. Students appearing for the entrance exam for the Cinema Studies stream should have some broad knowledge of the intellectual concerns and issues linked to the discipline. They should be familiar with the topics listed below which are areas covered by Masters level programmes. Questions set by the School are designed to assess the candidate's ability to reflect upon and critically engage with themes and issues related to cinema including:</p> <p>Indian Cinema History Globalization and Indian Cinema National Cinema Debates International Film Movements Issues and Debates in Research Methodology Media and Cultural Studies Sound and Colour in the History of Cinema Authorship Debates Theories of Genre Melodrama: Forms and Histories Film Stardom and Celebrity Culture Early Debates and Discourses on Film Modernism, Mass Culture and Cinema Media Aesthetics Space, Architecture and Cinema Film/Media: Sound and Colour Theories of the Cinematic Avant Garde The Cinematic Apparatus Cinema and the Postmodern Television and Video Theory Post Cinematic and Post Celluloid Debates Media Sensorium and Media Archaeology Debates Embodiment and Affect in Film/Media The Cultural Politics of Speed, Surveillance and Forensics in Cinema/Media The Archive Effect and Memory Digital Culture and the Internet Questions on research methodology have to be posed in the context of these issues.</p>

10. SCHOOL OF BIOTECHNOLOGY

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Biotechnology	Biotechnology – SBTH (904)	<p>Biophysical Chemistry:</p> <ol style="list-style-type: none"> Interactions in Biological Systems: Intra and inter molecular forces, electrostatic interactions and hydrogen bonding interactions; van der Waals and hydrophobic interactions; Disulfide bridges; Role of water and weak interactions Structure of Proteins: Conformational properties of polypeptides; Primary and secondary structure (α-helix and β-sheet structures etc.); Tertiary and quaternary structure; Structural features of membrane proteins; Secondary and tertiary structure prediction of protein conformation Multiple equilibrium: Titrations of proteins to evaluate net and total charge; Scatchard and Hill plots; Folding-unfolding equilibrium and denaturation of proteins; Effect of temperature and solvent conditions on the thermodynamics of protein folding-unfolding equilibrium and Kinetics of protein folding. Techniques for the study of Macromolecular structure: Analytical Ultracentrifugation: Sedimentation velocity and equilibrium, determination of molecular weights; Microcalorimetry (DSC and ITC) and its applications; Circular Dichroism spectroscopy; UV, Visible and Fluorescence spectroscopy; X-ray diffraction; Nuclear Magnetic Resonance (NMR) and Mass Spectrometry. <p>Biochemistry & Enzymology</p> <ol style="list-style-type: none"> Enzyme Kinetics and Inhibition: Introduction about enzymes, classification, activity, cofactors; Chemical Kinetics; Regulation of enzyme activity by various factors such as pH, temperature etc.; Enzyme Inhibition-various types with examples; Kinetics of enzyme inhibition; Enzyme activity and purification-subcellular fractionation and specific activity Enzymes: Mechanism, Structure and Regulation: Substrate specificity of enzymes; Functional Groups Essential for Catalysis; Reaction Mechanism of Enzyme Active sites; Regulatory Enzymes; Allosteric Enzymes; Covalently modulated regulatory enzymes; Covalent Activation of Zymogens; Isozymes Regulatory Strategies of Enzymes: Aspartate Transcarbamylase, Protein Kinase A, Myosin, Restriction Enzymes, Lactate Dehydrogenase, Ser/Thr Kinases, Tyr Kinases; Proteolysis Activation, Blood clotting Factors Glycobiology: Sugars, glycoproteins, glycoconjugates, glycosylation of biomolecules, disorders associated with glycosylation defects Introduction to Metabolism: Metabolic Pathways; Organic Reaction Mechanisms; Experimental Approaches to the study of Metabolism; Thermodynamics of Phosphate compounds; Oxidation-Reduction Reactions Carbohydrate Metabolism: Glycolysis; Fermentation: The Anaerobic Fate of Pyruvate; Metabolism of Hexoses Other than Glucose; Glycogen; Breakdown & Synthesis; Gluconeogenesis; Pentose Phosphate Pathway; Metabolic Regulation and Control

			<p>7. Citric Acid Cycle: Cyclic Overview; Metabolic Sources of Acetyl; Coenzyme A; Enzymes of the Citric Acid Cycle; Regulation of the Citric Acid Cycle</p> <p>8. Electron Transport and Oxidative Phosphorylation: The Mitochondrion; Electron Transport; Oxidative Phosphorylation; Control of ATP Production</p> <p>9. Lipid metabolism: Lipid Digestion, Absorption and Transport; Fatty Acid Oxidation & Biosynthesis; Ketone Bodies; Regulation of Fatty Acid Metabolism</p> <p>10. Amino Acid Metabolism: Role of essential amino acids; Amino Acid Deamination; The Urea Cycle; Metabolic Breakdown of Individual Amino Acids; Amino Acids as Biosynthetic Precursors; Amino Acids Biosynthesis; Nitrogen Fixation</p> <p>11. Nucleotide Metabolism: Synthesis of Purine Ribonucleotides; Synthesis of Pyrimidine Ribonucleotides; Formation of Deoxyribonucleotides; Nucleotide Degradation; Biosynthesis of Nucleotide Coenzymes</p> <p>Bio-organic Chemistry:</p> <p>1. Introduction to organic compounds: Classification of organic compounds To familiarize the students with the basic notations used in organic chemistry to describe the name, structural representation, and orientation of organic compounds To familiarize the students with the basic understanding of the various functional groups those are present in many organic compounds, their synthesis and properties Stereochemistry of organic compounds: To understand the perspective and spatial orientation of atoms in an organic molecule, to compare and contrast the different arrangement of atoms or groups around carbon</p> <p>2. Reaction Mechanisms: To understand the mechanistic pathways of organic reaction To understand the importance of steric and electronic influences of both reactant and reagents on the product formation or distribution The aim of this unit is to provide detailed exposure to some of the key areas of organic chemistry namely aliphatic and aromatic nucleophilic and electrophilic substitution reactions, elimination reactions and free radical reactions. The students will be able to recognize the direction of electron flow (use of curly arrows) in reaction mechanisms and knowledge of the relative stability of intermediates, prediction and/or explaining the products of reactions</p> <p>3. Name reactions and Spectroscopy: To understand the importance of specific reagents for a specific transformation To understand how the organic compounds can be characterized To understand how to identify the various functional groups those are present in organic compounds To enhance the working knowledge and understanding of some of the synthetic reactions that are widely used in organic chemistry Name reactions will be very much useful to help them gain insights into the numerous approaches that are used in various complex synthetic transformations.</p> <p>4. Heterocyclic Chemistry of Bioorganic Compounds: To identify and name the mono cyclic and bicyclic systems containing hetero atoms (atoms other than C and H); To understand how different heterocycles can be prepared from simple starting materials; To study how heterocycles can be interconverted. The study of heterocycles (their nomenclature, synthesis and reactions) will allow the students to learn the reactions that are useful for designing and interconverting therapeutically important compounds.</p> <p>5. Chemical Synthesis of Biomolecules: To identify and draw the carbohydrates structure using Fischer, Haworth and chair projection and their inter conversions; To understand how glycosylation reactions occurs and neighbouring group participation effects; To study how Glucose structure was elucidated by Fisher (Kiliani-Fisher synthesis, Ruff degradation, osazone formation, oxidation); Nucleic acid synthesis</p>
--	--	--	---

			<p>(phospho diester, triester methods, phosphoramidite chemistry, protection-deprotection strategies, modification of 2' OH); Peptide synthesis (SPPS), Protein synthesis.</p> <p>Mathematics and Statistics:</p> <ol style="list-style-type: none"> 1. Basic study of Calculus: Functions and Graphs, Limits and Continuity, Introduction to Differential equations and Integrations, definite and indefinite integrals, Integration by parts 2. Basic Algebra and Trigonometry: Determinant and Matrix, Arithmetic and geometric Progressions, Compound, Multiple and sub multiple angles 3. Basic coordinate Geometry: Straight line, circle, ellipse, parabola 4. Basic concept of computer Programming: Logical operations, Simple mathematical algorithms, Looping and Concept of rows and column operations 5. Introduction to MATLAB: Basic syntaxes, Analysis of Matrix using MATLAB, Analysis of the Data obtained from simple biological experiments using self-written programs (Data from UV-Vis spectra, Fluorescence spectra) Image analysis using simple microscopic images, analysis of basic mathematical models (radioactive decay functions, logistic growth etc.). <p>Bioinformatics:</p> <ol style="list-style-type: none"> 1. Biological data: Nature of biological data and its structure; High-throughput data, its generation and analysis basics. 2. Biological database: Bioinformatics basics, Introduction to Unix and Linux systems and basic commands; Database concepts; Protein and nucleic acid databases; Sequence file formats; databases and search tools: searching of databases similar sequence; NCBI; publicly available tools; resources at EBI; resources on web; database mining tools. 3. Sequence Analysis: Introduction to sequence alignment; substitution matrix; pairwise alignment; Scoring matrices, FASTA, BLAST; Statistical significance of alignment; motif discovery and gene prediction 4. Multiple Sequence Alignment: Multiple sequence alignment, CLUSTAL, MUSCLE, MAFFT, T-Coffee, distance matrix 5. Phylogenetic Analysis: Phylogenetic analysis; tree building methods, UPGMA, NJ; Maximum Parsimony; Maximum Likelihood; Software for phylogenetic analysis 6. Structural Biology: Structural databases; PDB File format; Peptide Bond, Phi-psi and chi torsion angles; Ramachandran Plot; Introduction to force field methods; Structural Classification; fundamental of protein modelling; homology modelling; ab initio modelling 7. Biological Data security, privacy, safety and sharing: Need for data security, Data privacy, Responsible sharing of biological data, Data ownership, Socio-legal issues around biological data. 8. Future of Biological Data: Where is the field going? Data size implications and its implications in future biological science research, New methods to deal with biological data complexity. <p>Molecular Biology of Prokaryotes: Brief introduction to molecular biology & processes: Denaturation and renaturation of DNA. Tm. GC content from Tm. Renaturation kinetics of DNA and complexity of DNA. Cot curves. DNA-DNA hybridization-relatedness of difference genes and species.</p> <p>Bacterial Genome organization: Evolution of genome, Genome content, C-value paradox, Packing ratio, density of genome. Bacterial genome. Short- and long range organization, Proteins associated with bacterial genome & their function.</p> <p>Bacteriophages: Genome and infection and Biology: Bacteriophage T4: Unique properties of genome, Presence of modified bases. Terminal redundancy & Circular permutation. Genetic map of T4 is circular. T4 life Cycle; Transcription: Temporal expression of genes. Replication:</p>
--	--	--	--

		<p>Degradation of host genome and generation of modified cytosine for its own perpetuation in T even phages. Assembly of Phage particles. T4 DNA polymerase and regulation of transcription; Bacteriophage T7: Gene organization and Infection Controlled Injection of DNA; Transcriptional regulation; Classes of genes. Taking over cells & production of T7 Polymerase. Differential affinity with Class II and III promoters; Bacteriophage ϕX174: Genome. Circularity of genome. Infection and Growth. Conversion of single stranded circular DNA viruses into double stranded RF form. Synthesis of viral plus strand from RF DNA. Packaging of genome in phage head. Transcriptional regulation, Overlapping genes.</p> <p>Plasmids: Microscopic and Genetic-F plasmid first plasmid to be detected. Counter-selection, Transfer accompanied by replication, Purification of plasmids. Mobilizable and non-mobilizable plasmids. Incompatibility- reasons of incompatibility. Copy number control. Replication of Plasmids: Use of host and plasmid encoded proteins. Uni- and Bi directional replication, Butterfly mode of replication. Replicon. Control of plasmid replication- Iiteron regulated and RNA regulated replication. Antisense RNA for primer RNA and replicase protein. Role of replication on incompatibility in Iiteron regulated. Drug-resistance plasmid: R- and RTF determinant. Colicin plasmid: Types of plasmids. Action of colicins. Colicin genes. Immunity and Lysis proteins. Export and Action</p> <p>Insertion sequences and Transposons: Significance of moving elements of the genome. Bacterial transposable element: General organization of simple insertion sequence & transposable elements. Mechanisms of transposition: Non-Replicative and Replicative transposition, IS transposition a regulated event? Bacteriophage Mu: Replication by transposition.</p> <p>Replication: Elucidation of DNA structure and lead to copying mechanism. Models for DNA replication, Meselson and Stahl experiment 1957. Replication of the <i>E. coli</i> genome: John Cairns experiments: Single origin of replication, and bidirectional replication, Ross Inman's experiment- denaturation mapping studies, Mechanism of replication: Theta, rolling circle (sigma), D-loop, Semi discontinuous replication: Pulse chase experiment, Okazaki's experiment on T4 bacteriophage DNA, Use of T4 ligase mutants. Origin of replication- Commonality among <i>E. coli</i>, yeast and SV40 origin of replication</p> <p>Enzymes of DNA replication: DNA polymerases: DNA polymerase I not the primary enzyme: Its other role in maintenance of DNA integrity. Processivity, direction of DNA polymerization, fidelity, <i>E. coli</i> DNA polymerase I and its components, Klenow fragment and other domains. DNA polymerase II and its function in DNA replication and repair DNA polymerase III: subunit structure and function: core and holoenzyme. DNA polymerase IV and V. Stages of DNA replication: Initiation- role of DNA methylases, types of <i>E. coli</i> methylases; elongation and proteins involved in elongation, termination. Priming: Mechanisms of priming. RNA primed DNA synthesis – experimental evidences, <i>E. coli</i> primase, Types of primosomes <i>E. coli</i> type and PhiX174 type, PAS sequences, Prepriming proteins Endonucleolytic priming: PhiX 174 gene A protein dual activity. Terminal protein priming. Other proteins of replication. DNA helicase, SSB protein & its effect on replication, DNA ligase, topoisomerases Types I & II, Nick translation.</p> <p>DNA recombination: Definition, applications of natural recombination, Classification of recombination, Various possibilities of recombination, Models of homologous recombination, Steps involved in homologous recombination, Recombination events during Single and double strand breaks, Holliday Junction and resolution, Protein machinery of recombination, branch migration and resolution</p> <p>Mutations and Repair: Mutants, Mutations and Mutagenesis: definition, reasons, measuring mutagenicity. Classifications of mutations: On the basis of location, structure, function and phenotype. Conditional, spontaneous and induced mutations, Missense, nonsense, frameshift mutations, Reversions. Mutagenic agents_ high energy, chemical and natural, Suppressor tRNA, missense repressors, frameshift suppressors</p> <p>Repair: DNA repair: Mismatch repair, Base excision repair, nucleotide excision repair, direct repair, enzyme of repair, Error prone repair, SOS response</p> <p>Transcription: Flow of information from DNA to protein. Organization of genes in bacteria. Collinearity of genes and proteins. Operon concept. Process of transcription: RNA polymerase subunit structure and function role of sigma factor in differential expression of genes in bacteria. Transcription units and Cis elements.</p> <p>Promoter: Consensus sequences affecting the promoter function. Constitutive and inducible promoters. Operator sequences as regulatory <i>cis</i> sequences. Initiation: Interaction of polymerase with the promoter and control at initiation. Attenuation. Elongation. Termination: Rho dependent and Rho independent termination. Control at termination: Attenuation, Antitermination. Processing of</p>
--	--	---

		<p>primary transcripts in prokaryotes: Processing of tRNA & rRNA. Cleavage of T7 early mRNAs by RNase III. Control at processing level. Regulation of transcription in bacteria: Introduction and repression. Repressor as a regulatory molecule. Coordinated control of gene clusters. Positive and negative regulation: Regulation of transcription of <i>lac</i>, <i>trp</i>, <i>ara</i>, <i>his</i>, & <i>gal</i> operons. Regulation through catabolite repression. CAP protein as a positive control factor. Transcriptional regulation in bacteriophage Lambda: Lytic and Lysogenic switch. role of various regulatory proteins.</p> <p>Translation: Genetic code. Origin of genetic code. Essential components of translation. Ribosome: the site for translation, subunit composition and assembly. Role of ribosomal RNA in translation. tRNA: Salient features of tRNA. Aminoacyl tRNA synthetases. Difference between initiator fmet-tRNA and met-tRNA, Suppressor tRNAs, frameshift suppression. Codon-Anticodon recognition: Wobble hypothesis. Process of translation: Activation, Initiation, elongation translocation and termination. Factors involved in various steps. Peptidyl transferases. Co-translational and Post – translational mechanisms. Control of gene expression at translational level.</p> <p>Immunology:</p> <ol style="list-style-type: none"> 1. Introduction to the Immune System: Historical background, cellular and molecular components of immune system 2. Innate Immunity: Innate immune cells, Pathogen associated molecular pattern (PAMP), Pathogen recognition receptors (PRR), Type 1 IFN, Interferon Stimulated Genes (ISGs), Complement system. 3. The Recognition of Antigen: Structure of a typical antibody molecule, Antigen recognition by T cell and B cells, Generation of lymphocyte antigen receptors, TCR gene rearrangement, Antigen presentation to lymphocytes, MHC/HLA complex. 4. The Development and Survival of Lymphocyte: The development of T lymphocytes in the thymus, Development of B lymphocytes, Positive and negative selection of T cells, Maturation of lymphocytes in peripheral lymphoid tissue 5. The Adaptive Immune Response: T cell mediated immunity, Entry of naïve T cells and APCs into peripheral lymphoid organs, Naïve T cells priming by pathogen-activated dendritic cells, T cell-mediated toxicity, Macrophage activation by TH1 cells, humoral immune response, Immunological memory, Cytokines. 6. Immune system in Disease: Self-tolerance, autoimmune diseases, transplant rejection, allergy and anaphylactic shock, AIDS immunology 7. Immune aging: Immunosenescence, Immune-exhaustion during aging and chronic infection, Mucosal Immunology 8. NK cells and Cancer: Inhibitory receptors, KIR receptors, CTL responses in cancer, Immunotherapy 9. Characterization of lymphocytes specificity, frequency and function: Lymphocyte isolation, ELISPOT assay, Multicolor flow cytometry, HLA-tetramer assay 10. Vaccines: History of vaccinology, attenuated vaccine, heat killed vaccine, subunit vaccine, recombinant vaccine, DNA vaccine, dendritic cell based vaccine, VLPs, T-cell based vaccine, edible and therapeutic vaccines. Vaccine against cancer, Adjuvants and their role in vaccine. <p>Plant biotechnology:</p> <ol style="list-style-type: none"> 1. Prologue to Plant's World: Plant and human society; Growth and development; Plant hormones; Photosynthesis 2. An Introduction to Plant Genetics: Plant genome organisation; Organellar Genome, Polyploidy; Genetic diversity; Molecular markers and mapping; Phylogenetics and genomics; Breeding and methods; Forward vs. reverse genetics; Discussion; 3. Basic Aspects/Techniques of Plant Tissue Culture: Introduction; Totipotency and Regeneration; Nutritional media and growth regulators; Haploid production,
--	--	---

			<p>Problems in plant tissue culture; Discussion.</p> <ol style="list-style-type: none"> 4. Transgenic Crops: Plant Transformation methods, Agrobacterium Biology, Molecular characterization of transgenic plants, Global status of transgenic crops; Traits under development; Case Studies; Challenges; Discussion 5. Applications: Crop improvement; Plant Molecular farming (Bioreactors); Renewable energy; Bio-fortification for Human Health; Discussion 6. Safety and Regulations: Understanding issues encountered in plant biotechnology; Risk assessment; Environmental impact and gene flow; Regulation and labelling; Discussion. <p>Microbiology:</p> <ol style="list-style-type: none"> 1. Bacterial diversity How to classify Bacteria; Chemical/Biochemical reactions; Nutrient preference and other biochemical properties; 16s rRNA base classification; Three domains of microorganisms. 2. Diversity of bacterial flora in humans Diversity of microorganisms associated with different anatomical areas in humans; Alterations in microbiome diversity with diseases. 3. Structure and functions of the prokaryotic cells Peptidoglycan structure and biosynthesis; Cell surface proteins and their role in bacterial pathogenesis; Structure and biosynthesis of cell surface organelles; Chaperone –usher pili in gram negative bacterial; Covalent anchorage of cells surface proteins in gram positive bacteria. 4. Bacterial host pathogen interaction Mechanisms of bacterial pathogenesis; Bacterial structure in relation to pathogenicity; Bacterial proteins toxins/endotoxins. 5. Antimicrobial agents used in the treatment of infectious diseases Mechanism of antibiotic actions; Antibiotic resistance. 6. Basic concepts of virus structure Helical Symmetry; Icosahedral Symmetry. 7. Origin of viruses Different hypothesis; Viral eukaryogenesis. 8. Emerging and re-emerging viral diseases Emerging viral infections as public health threats; Factors effecting re-emergence of viruses. 9. Viral genome replication Double stranded DNA virus; Single stranded DNA virus; Single stranded RNA virus; Double stranded RNA virus; Retrovirus. 10. Molecular genetics of viruses Mutation rates and outcomes; Phenotypic variations by mutations; Recombination 11. Molecular pathogenesis Animal models; Methods for the study of viral pathogenesis 12. Viral immune evasion strategies Innate immunity; Adaptive immunity. 13. Antiviral chemotherapy- Mechanism of action Viral genome replication inhibitors; Viral entry, exit and maturation inhibitors 14. Modern approaches to virus control Antisense RNA, siRNA, ribozymes and miRNA 15. Construction of recombinant viruses for therapeutic purpose Replication incompetent virus; Replication competent virus. <p>Eukaryotic Molecular biology and Genetics:</p> <ol style="list-style-type: none"> 1. Introduction to molecular genetics: Basic concepts for gene, gene analysis,
--	--	--	---

			<p>gene-function and genome of different model organisms (Archaea to Human). General genome characteristics of the model organisms, Comparative genome structure analysis of the prokaryotes and eukaryotes.</p> <p>2. Fundamentals of human genetics: Physical structure of the gene, Mendel's laws, alleles & genotypes, Segregation patterns, Deviations from mendelian principles, Penetrance and Expressivity, Statistical methods used in genetics, Organization of the human genome, Techniques to study human chromosomes, DNA methylation and histone code.</p> <p>3. Modern tools of Human Molecular Genetics: Concepts in the molecular genetics, Basic knowledge of the mammalian transcriptomics, Transcriptomic analysis of mammalian cell and its importance in human physiology, Basic nucleic acid hybridization assay, Factors affecting nucleic acid hybridization, Common hybridization probes and methods of probe labelling, Microarray hybridization, Applications of microarray hybridization in functional genomics and biotechnology.</p> <p>4. Genes in pedigrees and population: General concepts of the genetics and gene inheritance, interdisciplinary (e.g. Mathematical, statistical, computational approaches etc). Inherited disease symptoms to genetic analysis. Early days of gene hunting: Use of microsatellite markers for identifying disease genes for monogenetic diseases such as haemophilia and cystic fibrosis, Mendelian pedigree patterns, Factors affecting gene frequencies, Hard-Weinberg relationship.</p> <p>5. Genomics: The mapping and sequencing of genomes: Approaches and milestones in genetic and physical mapping of the human genome, Disadvantages of advantageous previous gene hunting methods for complex disorders such as type 2 diabetes, Human genome project, HapMap project 1000 genome project, linkage disequilibrium, Role of genome wide association studies (GWAS) in understanding complex disease genomics, Advantages and limitations of association studies, Genomic libraries, DNA sequencing and analysis of DNA, Comparative genomics: Tools and applications.</p> <p>6. Genetic models for studying mammalian development and diseases: Study of model organisms, comparative genomics and evolution, Concept of G-value paradox. Selection. Invertebrate model & vertebrate model (one each example).</p> <p>7. Basics human epigenetics and its applications: Basic concepts, Chromatin conformations: DNA methylation and the histone code, Epigenetic memory & Imprinting in humans, ENCODE project, Different available methods and their comparisons.</p> <p>8. Pharmacogenetics, personalized medicine and population screening: Pharmacogenetics, Pharmacogenomics, Genetic differences affecting metabolism of drugs taking warfarin as an example, Personalized medicine, Testing for susceptibility to complex diseases, Population screening.</p> <p>9. Introduction to Eukaryotic Molecular Biology: How to read a paper. The evolution of a Cell with Nucleus, Hypothesis vs speculation in science, Rationalization of hypothesis, Experimental tools, Eukaryotic genome, gene expression and cell fate.</p> <p>10. Dynamic genome – 3 D cell, dynamic genome architecture in nuclear space, chromatin movement, microscopes, microarrays and chromosome capture assays chromatin mobility and principle of nuclear organization, Nuclear architecture and gene-gene interaction, gene kissing, transcription factories, structural constraints on chromatin mobility (5L)</p> <p>11. Nuclear Matrix and gene regulation: Nuclear matrix, nuclear matrix proteins, nuclear-matrix, structure and function, DNA Binding Properties of the Nuclear Matrix and Individual Matrix Prose.</p> <p>12. Association of chromosome territories with the nuclear matrix: Disruption of</p>
--	--	--	--

			<p>human chromosome territories correlates with the release of a subset of nuclear matrix proteins, nuclear matrix targeting, signal, higher order chromatin structure and nuclear matrix, transcriptional repression & nuclear lamina, nuclear matrix & expression of globin gene.</p> <p>13. Principle of eukaryotic Gene regulation: gene regulating sequences, promoter, enhancers, regulatory elements, locus control region, gene activation and gene repression, transcription activators and repressors, TBP, GTFs, TBP associated factors (TAFs), RNA polymerases I, II, III, structure and function, mediators, general transcription factors, classes of transcription factors, structure and function, DNA-protein recognition in genome, Transcriptional regulatory networking, gene expression and Cancer progression</p> <p>14. Programmed cell death: Apoptotic and necrotic cell death, apoptotic and anti-apoptotic genes, tumour suppressor genes, cell fate through decision between cell cycle arrest and apoptosis.</p> <p>15. Gene regulation and disease: Order vs disorder in transcriptional regulation, network disfunction and disease, transcriptional therapeutics in diseases control.</p> <p>Cell Biology:</p> <p>1. Composition and organization of biological membranes: Membrane lipids: Types, properties and how they affect the curvature and fluidity of the membrane; lipid rafts: composition, a platform for organization of signalling complexes Membrane proteins: Properties and orientation in biological membranes; membrane composition and curvature, Membrane asymmetry, methods to study diffusion in membranes</p> <p>2. Cellular transport mechanisms: Principles of transport of small molecules across membrane: Organization and functioning of carriers and channels, membrane potential, action potential and membrane excitability Protein transport across membranes: Transport across the nuclear pore; Transport across ER and from ER to other organelles by vesicular transport; Post-translational modifications of proteins and their role in protein transport; Endocytosis, phagocytosis, exocytosis</p> <p>3. Cell Cycle: Components of cell cycle regulatory mechanisms: Cyclin-CDK complexes, CKIs and ubiquitin ligases in cell cycle regulation; Cell Cycle control mechanisms: Checkpoints, Regulation and maintenance of G1, control of genome replication, DNA damage and cell cycle regulation; Cell cycle defects and cancer: Key defects in cell cycle regulation and transformation)</p> <p>4. Cell Signaling and Crosstalk: Introduction: General Principles of cell communication, cell surface receptors and nuclear receptors, intracellular signalling and mechanisms. Cell Surface Receptors: regulation and signaling of G-protein-coupled receptors, G-proteins, cAMP dependent & c-GMP dependent pathways. Receptor Tyrosine kinase mediated signalling pathways- EGFR and IGFR mediated cell signalling and effects to cell apoptosis and cell proliferation. The pathway involving Ras and MAPK will be discussed in detail. Phosphoinositide & PI3Kinase- AKT signalling pathway, Ser/Thr Kinase mediated signalling, His-Kinase mediated signalling pathway and two component signalling pathway. Proteolysis based signaling (Wnt, Notch, Hedgehog): Structural and functional basis for normal and abnormal signalling. Cross-Talk Between Different Intracellular Pathways: Interactions between GPCRs and tyrosine kinase receptors; cross-cascade signaling of proteins involved in gene transcription. (Example: Cross talk between pattern-recognition receptors and Toll-like receptors.</p> <p>5. Cytoskeletal Network: Cytoskeletal network Proteins and their role: actin, microtubules and intermediate filaments. Extracellular Matrix components Cytoskeletal Protein Signaling network affecting cell adhesion and migration phenomenon of the cell.</p>
--	--	--	---

			<p>6. Cellular Mechanisms: Pathways of cell apoptosis, intrinsic and extrinsic, pathways for cell proliferation; Pathways for autophagy; ER stress and UPR pathways; Effect of glycosylated proteins on cellular Mechanisms of cell.</p> <p>Genetic Engineering and its Applications:</p> <ol style="list-style-type: none"> 1. Methods, Tools and Molecular Strategies in Genetic Engineering: Introduction to genetic engineering, general work flow, potentials and its limitations; Host, vector and steps in cloning. Cloning of cDNA, and construction of cDNA library; Analysis of a cloned DNA fragment using restriction digestion and DNA sequencing; Concept, strategies, general workflow and variant of the PCR; The use of PCR in gene recombination, deletion, insertion and site directed mutagenesis; PCR in molecular diagnostics: Defection of the pathogens, and its potentials; PCR based diagnostics of the minimum residual disease (MRD) with case study; Application of real time (RT) PCR in the study of gene expression; Use of genetic engineering for recombinant protein technology; Expression of foreign gene in E. coli, Baculovirus and Pichia expression systems; Strategies for the production of soluble proteins; Role of integrated OMICS in the genetic engineering; Importance of computational tools and system biology for genetic engineering. 2. Animal Genetic Engineering: Methods of introduction of DNA into mammalian cells and Cell synchronization and its importance in the genetic engineering; Transient and stable integration of foreign DNA into mammalian cells; The viral vectors and their use in gene delivery and packaging of retroviral vectors and helper cells for gene therapy; The Adeno viral vector, unarmed Herpes and vaccinia viral vectors and their importance; Principles and methods of the gene targeting for model organism; Strategies for Gene knockouts in animals; Gene disorder and Gene therapy; Development of animal models for gene therapy; Detection of mutations in neoplastic diseases; Immuno - Suicide gene therapy in neoplastic diseases; Somatic and germ line gene therapy in vivo and ex-vivo experiments, Bioethics; Use of genome wide screening in the functional genomics; Recent breakthrough and advances in the genome engineering; Recent trends and development in the gene therapy. 3. Plant Genetic Engineering: Introduction to plant tissues culture, Plant transformation (Agrobacterium-mediated, Microprojectile bombardment-mediated and Floral-dip method of plant transformation), cointegrate and binary vector system, CRISPR/Cas9-based precise genome engineering, Transgenic Selection and Regeneration, optimization of transgenic expression, Applications of plant genetic engineering, understanding issues encountered in plant biotechnology, Discussion. <p>Downstream Processing:</p> <ol style="list-style-type: none"> 1. Thermodynamic requirements of separation: Classification of separation processes-equilibrium and non-equilibrium processes. Chief characteristics of bio-separation processes. RIPP: removal of in-solubles, isolation of products, purification and polishing. 2. Cell harvesting: Cell disruption – ball mill, chemical lysis, homogenization, selection of unit operation for insoluble removal. Centrifugation – general theory of centrifugation-final settling velocity, critical particle diameter, sigma factor. Types of centrifuges: tubular bowl, disc stack, basket, Sharples super-centrifuge. Theory of disc-stack centrifuges. Filtration. Types of filtration –rotary vacuum drum, plate and frame, leaf filters. Compressible cakes and filter aids. Theory of filtration. 3. Product isolation: Extraction, principle of extraction, partition coefficient, extraction factor, batch extraction, cascades, idealized stage operation, differential extraction, height of a transfer unit, number of transfer units, adsorption, adsorption isotherms, batch adsorption, adsorption in a CSTR. Aqueous Two Phase Extraction, Supercritical extraction, Foam based separation. 4. Product Purification: Chromatography, yield and purity and resolution, Principles of elution chromatography, ion-exchange, hydrophobic interaction, reverse-phase chromatography, gel-filtration chromatography. The concept of resolution, plate height. Protein purification. Synthesis of chromatography trains. Scaling-up chromatography using PAT/QbD approach.
--	--	--	---

			<p>5. Membrane filtration: Tangential flow filtration, micro-filtration, ultra-filtration, reverse osmosis</p> <p>6. Polishing: Crystallization – separation, purity, nucleation, crystal growth, characteristic length, crystal size distribution, dominant crystal length.</p> <p>7. Lyophilisation and drying</p> <p>8. Case study of Monoclonal antibody purification</p> <p>Bioprocess Engineering:</p> <ol style="list-style-type: none"> 1. Basics of bioprocess engineering: Introduction to bioprocess engineering, Microbial growth and death kinetics; Strain improvement strategies; Ideal and non-ideal reactors; Residence Time Distribution; Elements in bioreactor design- overview of bioreactor, specialised bioreactors, Construction materials, types of bioreactors, components of bioreactors and importance 2. Stoichiometry and Models: Stoichiometry of cellular reactions, reaction rates, dynamic mass balance, yield coefficient and linear rate equations; Material balances and data consistency (the Black box model, elemental balances, heat balance, over determined systems); Metabolic Flux Analysis and Metabolic control analysis: concept and applications. 3. Bioreactor design and analysis: Upstream processing: media formulation and optimization; sterilization (medium and air)-thermal death kinetics of microorganisms; aeration, agitation in bioprocess; Analysis of batch and continuous culture; Multiphase bioreactor system; Scale-up, scale-down. Developments using microbial processes (SmF and SSF), mammalian cell culture, plant cell culture, photobioreactor and CART-cell culture; Gas fermentation: Overview of conversion of gasified biomass and industrial gaseous into value added chemicals. 4. Monitoring of Bioprocesses: On line data analysis for measurement and control of important physicochemical and biochemical parameters, parameter estimation techniques for biochemical processes, Techno-economic feasibility of bioprocess. Challenges in biotherapeutics manufacturing. <p>Emerging Technologies:</p> <ol style="list-style-type: none"> 1. Systems Biology: Bimolecular network models, virtual cells, cytoscape 2. Synthetic Biology: Standards in biology, logic gates, oscillators, synthetic genes & proteins, synthetic cells 3. Neurosciences: Brain computer interface and consciousness: basic concepts & technological review 4. Photoreceptor Biotechnology: Development of climate-smart crops with photoreceptor biotechnology, Photoreceptor biotechnology for carbon sequestration and biorefinery, value added products, Artificial illumination for increasing yield and nutritional index of the crops 5. Optobiology: Photoimmunology, Photodynamic therapy, optogenetics therapy, opto-pharmacology and optogenetics for controlling neural networks, behavioral and neuropathies 6. Genome Biology: Introduction to Next Generation Sequencing technologies, Whole Genome Assembly and challenges, Sequencing and analysis of large genomes, Gene prediction, Functional annotation, Comparative genomics, Human genome project, Human Genomics Databases, Functional genomics case studies 7. Data in biology: Usefulness of data in biology, emerging technology like machine learning and artificial intelligence 8. Introduction to Microfluidics: Importance of low volume measurement, Design and fabrication of microfluidic devices, Applications in biomedical sciences 9. Biosensors and Bioelectronics: Different types of sensors, optical and electronic biosensor, Nanoparticle plasmonic based optical sensing, fabrication of electronic sensors for impedimetric detection of biomolecules, cyclic voltammetry and immobilization of biomolecules on electrodes for electronic sensing
--	--	--	---

			<p>10. Nanotechnology and its Application: What is Nanotechnology? Different types of Nano materials; their synthesis and characterization; applications in biotechnology and other fields.</p> <p>Bioentrepreneurship:</p> <ol style="list-style-type: none"> 1. Innovation and entrepreneurship in bio-business: Introduction and scope in Bio-entrepreneurship, Types of bio-industries and competitive dynamics between the sub-industries of the bio-sector (e.g. pharmaceuticals vs. Industrial biotech), Strategy and operations of bio-sector firms: Factors shaping opportunities for innovation and entrepreneurship in bio-sectors, and the business implications of those opportunities, Alternatives faced by emerging bio-firms and the relevant tools for strategic decision, Entrepreneurship development programs of public and private agencies (MSME, DBT, BIRAC, Make In India), strategic dimensions of patenting & commercialization strategies. 2. Bio markets - business strategy and marketing: Negotiating the road from lab to the market (strategies and processes of negotiation with financiers, government and regulatory authorities), Pricing strategy, Challenges in marketing in bio business (market conditions & segments; developing distribution channels, the nature, analysis and management of customer needs), Basic contract principles, different types of agreement and contract terms typically found in joint venture and development agreements, Dispute resolution skills. 3. Finance and accounting: Business plan preparation including statutory and legal requirements, Business feasibility study, financial management issues of procurement of capital and management of costs, Collaborations & partnership, Information technology. 4. Technology management: Technology – assessment, development & upgradation, managing technology transfer, Quality control & transfer of foreign technologies, Knowledge centers and Technology transfer agencies, Understanding of regulatory compliances and procedures (CDSCO, NBA, GCP, GLA, GMP). 5. India, Asian and Global Status of Bioentrepreneurship: Challenges in the entrepreneurship training, Mentoring and nurturing the business of biotechnology, Current status of Bioentrepreneurship in India, State of the Asian Bioentrepreneurship, An emerging and re-emerging model of European Bioentrepreneurship. Standard models strategies of Bioentrepreneurship around the world, Policies and rights for Bioentrepreneurs, surviving in the valley of death for Bioentrepreneurs. <p>Intellectual Property Rights, Bioethics and Biosafety:</p> <ol style="list-style-type: none"> 1. Introduction to IPR: Introduction to intellectual property; types of IP: patents, trademarks, copyright & related rights, industrial design, traditional knowledge, geographical indications, protection of new GMOs; International framework for the protection of IP; IP as a factor in R&D; IPs of relevance to biotechnology and few case studies; introduction to history of GATT, WTO, WIPO and TRIPS; concept of 'prior art': invention in context of "prior art"; patent databases - country-wise patent searches (USPTO, EPO, India); analysis and report formation. 2. Patenting: Basics of patents: types of patents; Indian Patent Act 1970; recent amendments; WIPO Treaties; Budapest Treaty; Patent Cooperation Treaty (PCT) and implications; procedure for filing a PCT application; role of a Country Patent Office; filing of a patent application; precautions before patenting-disclosure/non-disclosure - patent application- forms and guidelines including those of National Bio-diversity Authority (NBA) and other regulatory bodies, fee structure, time frames; types of patent applications: provisional and complete specifications; PCT and conventional patent applications; international patenting-requirement, procedures and costs; financial assistance for patenting introduction to existing schemes; publication of patents-gazette of India, status in Europe and US; patent infringement- meaning, scope, litigation, case studies and examples; commercialization of patented innovations; licensing – outright sale, licensing, royalty; patenting by research students and scientists-university/organizational rules in India and abroad, collaborative research - backward and forward IP; benefit/credit sharing among parties/community, commercial (financial) and non-commercial incentives
--	--	--	--

			<p>3. National & International Regulatory: International regulations – Cartagena protocol, OECD consensus documents and Codex Alimentarius; Indian regulations – EPA act and rules, guidance documents, regulatory framework – RCGM, GEAC, IBSC and other regulatory bodies. Draft bill of Biotechnology Regulatory authority of India - containments – biosafety levels and category of rDNA experiments; field trails – biosafety research trials – standard operating procedures - guidelines of state governments; GM labelling – Food Safety and Standards Authority of India (FSSAI)</p> <p>4. Biosafety: Biosafety and Biosecurity - introduction; historical background; introduction to biological safety cabinets; primary containment for biohazards; biosafety levels; GRAS organisms, biosafety levels of specific microorganisms; recommended biosafety levels for infectious agents and infected animals; definition of GMOs & LMOs; risk – environmental risk assessment and food safety assessment; problem formulation, risk characterization and development of analysis plan; risk assessment of products derived from RNAi, genome editing tools</p> <p>5. Bioethics: Introduction, ethical conflicts in biological sciences - interference with nature, bioethics in health care - patient confidentiality, informed consent, euthanasia, artificial reproductive technologies, prenatal diagnosis, genetic screening, gene therapy, transplantation. Bioethics in research – cloning and stem cell research, Human and animal experimentation, animal rights/welfare</p> <p>Animal Biotechnology:</p> <p>1. Culture media for animal cell culture: Media and supplements, serum, serum free media, natural media, feeder layer on substrate, Gas Phase for tissue culture, source of tissue, primary culture; Stages of commitment and differentiation, proliferation and malignancy</p> <p>2. Subculture and cell lines: Cross contamination, terminology, naming and choosing cell line and its maintenance. Criteria for subculture, growth cycle and split ratio, propagation in suspension and attached culture.</p> <p>3. Cloning and Hybridoma technology: Vectors and cloning, somatic cell fusion, hybridomas, HAT selection, Medium suspension fusion, selection of hybrid clones, organ culture</p> <p>4. Cell separation and quantitation: Separation techniques based on density, size, sedimentation velocity, antibody based techniques- immuno panning, magnetic sorting, fluorescence activated cell sorting; Quantitation-cell counting, cell weight, DNA content, protein, rate of synthesis, measurement of cell proliferation.</p> <p>5. Cell characterization and differentiation: Lineage and tissue markers, cell morphology, karyotyping, chromosome banding; Differentiation-commitment, terminal differentiation; Lineage selection, proliferation and differentiation, commitment and lineage, markers of differentiation, induction of differentiation, cell interaction-homotypic and heterotypic; Cell-matrix interaction.</p> <p>6. Application of animal biotechnology: Artificial animal breeding, cloning and transgenic animals, medicines, vaccines, diagnosis of diseases and disorders, gene therapy, forensic application.</p> <p>Advances in Protein Chemistry:</p> <ol style="list-style-type: none"> 1. Protein Engineering 2. Thermodynamics of protein stability using calorimetry 3. Protein-ligand interaction 4. Mechanisms of protein folding 5. Protein aggregation and amyloid fibril formation. 6. Protein dynamics by Hydrogen-Deuterium(H-D) exchange 7. Fluorescence polarization and fluorescent probes for conformational studies 8. Application of mass spectrometry in sequencing and conformation 9. Protein structure determination by NMR spectroscopy <p>Advances in Human Molecular Genomics:</p>
--	--	--	---

			<ol style="list-style-type: none"> 1. Introduction to Concepts of Genomics: Basic concepts of Genetics & Genomics and their similarities and differences. Basic Epigenetics. Genetic counselling & risk assessment. Ethics in Medical Genetics. 2. Human Disease Genomics: Genetics of common and complex human diseases with their complex inheritance pattern. Molecular, biochemical & cellular basis of human genetic diseases. Advanced tools of human molecular genetics. Disease gene identification. Epigenetic basis of human diseases. 3. Human Population Genomics: Genetic variation in individuals & populations; Mutations & polymorphisms. Human Genome Project. HapMap Project. ENCODE Project. Pharmacogenetics & pharmacogenomics. <p>Chemical Biology:</p> <ol style="list-style-type: none"> 1. Design of molecules: Rational Design- Principles of rational design of small molecules for therapeutic and biotechnological purposes; Principles of rational and combinatorial design of macro molecules like designer enzymes/aptamers/DNA origami. Combinatorial design- Design of small molecule libraries (organic compounds, peptides) through scaffold design, bio-isostere searching and fragment-based approaches; Design of macromolecular libraries, random mutagenesis and combichem approaches. 2. Mechanistic enzymology: Enzymatic red-ox reactions, Baeyer-Villiger oxidation; Polyketide synthesis; Stereo chemical aspects of the conversion of oxaloacetate to citrate Protease (any two); Enzymatic epimerization/racemization reactions (PLP). <p>Computational Biology:</p> <ol style="list-style-type: none"> 1. Computational biology basics and biological databases: Computers in biology and medicine; Overview of biological databases, nucleic acid & protein databases, primary, secondary, functional, composite, structural classification database, Sequence formats & storage, Access databases, Extract and create sub databases, limitations of existing databases 2. Pairwise and multiple sequence alignments: Local alignment, Global alignment, Scoring matrices - PAM, BLOSUM, Gaps and penalties, Dot plots. Dynamic programming approach: Needleman and Wunsch Algorithm, Smith and Waterman Algorithm, Hidden Markov Model: Viterbi Algorithm. Heuristic approach: BLAST, FASTA. Building Profiles, Profile based functional identification 3. Genome analysis: Polymorphisms in DNA sequence, Introduction to Next Generation Sequencing technologies, Whole Genome Assembly and challenges, Sequencing and analysis of large genomes, Gene prediction, Functional annotation, Comparative genomics, Probabilistic functional gene networks, Human genome project, Genomics and crop improvement. Study available GWAS, ENCODE, HUGO projects, extract and build sub databases; Visualization tools including Artemis and Vista for genome comparison; Functional genomics case studies. 4. Molecular modelling: Significance and need, force field methods, energy, buried and exposed residues; side chains and neighbours; fixed regions; hydrogen bonds; mapping properties onto surfaces; RMS fit of conformers and protein chains; assigning secondary structures; sequence alignment: methods, evaluation, scoring; protein curation: backbone construction and side chain addition; different types of protein chain modelling: ab initio, homology, hybrid, loop; Template recognition and alignments; Modelling parameters and considerations; Model analysis and validation; Model optimization; Substructure manipulations, annealing, protein folding and model generation; loop generating methods; loop analysis; Analysis of active sites using different methods in studying protein-protein interactions 5. Structure-based drug development: Molecular docking: Types and principles, Semi-flexible docking, Flexible docking; Ligand and protein preparation, Macromolecule and ligand optimization, Ligand conformations, Clustering, Analysis of docking results and validation with known information. Extraprecision docking platforms, Use of Small-molecule libraries, Natural compound libraries for virtual
--	--	--	--

			<p>high throughput screenings.</p> <p>Environmental Biotechnology:</p> <ol style="list-style-type: none"> 1. Introduction to Environment: Introduction to environment; pollution & pollution indicators; waste management: domestic, industrial, solid and hazardous wastes; Biodiversity and its conservation; microbiology of water, air and soil: types, importance and diseases; microorganisms and biogeochemical cycles; Role of microbes in biogeochemical cycles - Carbon cycle; Sulphur cycle; Nitrogen cycle and Phosphorus cycle. 2. Bioremediation: Bioremediation: Fundamentals, methods and application; bio stimulation & bioaugmentation; bioremediation of heavy metals & organic pollutants like pesticides, Polycyclic aromatic hydrocarbons etc. Biodegradation: types, microbial basis and role in environment. 3. Role of microorganisms in bioremediation: Application of bacteria & fungi in bioremediation: White rot fungi vs specialized degrading bacteria: examples, uses and advantages vs disadvantages; Phytoremediation: Fundamentals, methods (phytoaccumulation, phytovolatilization, rhizofiltration, phytostabilization) & applications. 4. Biotechnology and Agriculture: Bioinsecticides: Bacillus thuringiensis, Baculoviruses, etc; genetic modifications, applications and safety in their use; Biofertilizers: Symbiotic systems between plants – microorganisms (nitrogen fixing symbiosis, mycorrhiza fungi symbiosis), Plant growth promoting rhizobacteria (PGPR) – classification, PGPR and plant root interactions; mechanism of action, applications & challenges; Biofungicides: Description of mode of actions and mechanisms. 5. Biofuels: Environmental Biotechnology and biofuels: biogas, bioethanol, biodiesel, biohydrogen; Biomass resources: lignocellulosic and algae; genetic engineering for feedstock improvement; microorganisms and biotechnological interventions; Improvement of biological strains, <p>Infectious Disease Biology:</p> <ol style="list-style-type: none"> 1. Microbial mechanisms of establishment and persistence (Strategies of pathogens to establish acute and chronic infections): Role of key microbial proteins and metabolic functions in persistence (bacterial toxins, secretion systems and virulence), Microbial variability and persistence: sub-typing of pathogens (including WGS), genetic regulation and exchange of virulence determinants, emerging infections, the microbiome, antibiotics and resistance, Biofilm formation and microbial intercellular communication 2. Principles of Molecular Biology, Pathogenesis, & Control of Human Viruses: Basic principles of infection, transmission, tropism of human viruses, Biology of individual pathogenic human viruses, including influenza, HIV, Herpes, Polio, Hepatitis, RSV and Dengue viruses. Evolution of viruses and viral strategies for the evasion of the natural and adaptive immune system. 3. Host response to infection and microbial modulation of host responses: Host genetic susceptibility (Coevolution and coadaptation), Cellular responses to persistent infection (interaction with array of host receptor), Escape of pathogens from innate and adaptive immunity (microbial manipulation of host inflammatory responses) 4. Virus-host interaction in Infectious diseases: Co-evolution and adaptation between viruses and hosts. (post-entry viral inhibitors, natural versus non-natural hosts), Resident viruses and their interaction with host immune system: Significance of "host-virobiota" interaction and "Virome" study., Early Virus-Host Interaction: How they predict the course of a persistent infection. 5. Epigenetic modifications and viral infection: Epigenetic remodelling of host genes in human viral infection., Methods of Epigenetic Analysis (DNA methylation, Amplification of Inter-Methylated Sites, Methylated DNA Immunoprecipitation (MeDIP), NSG., Endogenous retroviruses and their association with diseases: PERV and Xenotransplantation. Host epigenetic/cellular responses to control the
--	--	--	--

			<p>expression of endogenous retroviruses in the cell.</p> <ol style="list-style-type: none"> 6. New Threats: Emerging Viral Diseases: Epidemiology and cross species viral infection, Virus fitness and host switching., Virus and Nervous system: Debut of Zika virus in the Medical science., Computational approach to predict virus resistance, immunogenic epitopes, and vaccine design. (Introduction to Los Alamos HIV Database, and NetCtl), Severe Acute Respiratory Syndrome (SARS) and Human Coronaviruses (HCoVs): Transmission and disease pathogenesis. 7. Systems analysis of host-pathogen interactions (introduction to PHI database): Host - Pathogen Interaction Database, Hi-Jack: A novel computational framework for pathway-based inference of host-pathogen interactions, Host-Pathogen Interactions Alignment (HPIA) algorithm 8. Viruses and Human Cancers: Viral mechanisms of transformation and tumorigenicity, Interactions between human cancer viruses and the immune system, Use of high-throughput genomics in Tumour virology. Oncolytic viruses (OVs) and can <p>Molecular and Cell Biology of Viral Oncogenesis:</p> <ol style="list-style-type: none"> 1. Genomic Integrity and development of cancer: Replication errors, mutagens, inherited defects in DNA repair mechanisms, alterations in chromosomal structure 2. Oncogenes: Activation by endogenous retroviruses, changes in structure and expression leading to oncogene activation 3. Tumor suppressor genes: Role in cancer development and prevention, epigenetic regulation of expression of TSGs 4. Hallmarks of cancer: Different cell types in cancer, progression, characteristics of cancer cells 5. Signaling receptors and cancer: Growth factors and signaling proteins as oncogenes (e.g. Src, EGFR, Integrin receptors), alteration of cell signaling in cancer (Ras, Akt/PKB, JAK-STAT, Wnt/β- 6. Cell cycle and cancer: Role of p53 and retinoblastoma in cell cycle regulation, interplay between phosphorylation, dephosphorylation and ubiquitylation in regulation of cell cycle and aberrations in these mechanisms 7. Cell Biology of invasion and metastasis: Epithelial to mesenchymal transition (ETM), TFs in ETM, role of Ras-like GTPases in cell adhesion, shape and motility, factors affecting metastasis 8. Viral carcinogenesis: Discovery of oncogenic viruses; The origin and nature of transforming gene; Functions of viral transforming genes 9. Molecular biology of RNA and DNA tumor viruses: Direct acting and indirect acting tumor viruses 10. Activation of cellular signal transduction pathways by viral oncogene: Viral mimics cellular signaling molecules; Altering the activity of signal transduction proteins 11. Disruption of cell cycle control pathway by viral oncogene products: Abrogation of restriction point control exerted by Rb proteins; Production of virus specific cyclins; Inactivation of CDK inhibitors 12. How viruses counteract the barriers of tumor growth: Telomerase activity; Cell polarity and attachment; Epigenetic control 13. Viruses as novel cancer therapeutic agents: Generation of recombinant viruses to selectively target and lyse the cancer cells; Various strategies to arm the recombinant virus to enhance its oncolytic ability. <p>Nanobiotechnology:</p> <ol style="list-style-type: none"> 1. Introduction to Nanotechnology: Current status, Different types of nano materials their importance and applications, Different methods for the synthesis of nanomaterials and characterization processes including basic instrumentation. 2. Nano Biotechnology: Role in nanomedicine including toxicity, ethical & regulatory issues, nanoparticle-based drug delivery strategies, advantages & disadvantages of
--	--	--	---

			different nano-materials used for drug delivery
			3. Nanotechnology for diagnostics: Optical diagnostics, Fabrication of electrodes, Applications of Biosensor, role of nanomaterials and nanostructures in the enhancement of sensitivity
			4. Light induced nanostructures: Light induced nanostructures formation and their biomedical applications
			5. Biosynthesis of nanoparticles: Molecular machinery of biosynthesis of metal Nanoparticles by microorganisms and their use. Green biosynthesis of nanoparticle and sustainable development. Bio-Inspired nanotechnology and its importance.

11. SCHOOL OF SANSKRIT AND INDIC STUDIES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Sanskrit and Indic Studies (SSIS)	Sanskrit Studies – SANH (906)	Syllabus: The test will cover the following areas: Indian Philosophical Systems; Traditions of Yoga & Sādhana, Sanskrit literature and Poetics; Sanskrit Grammar and Grammatical Theory; Modes of Disputation and Interpretation of Texts; Sanskrit Linguistics including Computational Linguistics; Vedic, Agamic and Purāṇic Studies; Pali and Prakrit Studies; Indian Social Thought, Religious Studies; Sanskrit Manuscriptology; Issues in Sanskrit Studies and Researches; Research Methodology & Research Aptitude.

12. School of Engineering

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

S. No	Program	Branch	Syllabus
1.	Ph.D.	Computer Science and Engineering	Syllabus: 50% of the questions will be from research methodology and remaining 50% from bachelor's/master's level computer science engineering Research Methodology: Experimental design; fundamentals of sampling; data types, quality measurement; processing and analysis of data; hypothesis testing (parametric, nonparametric), theory of probability. Computer Science: Engineering mathematics, Digital logic, Computer organisation and architecture, Programming and data structure, Algorithms, Theory of computation, Compiler design, Operating system, Database, Computer networks.
2.	Ph.D.	Electronics and Communication Engineering	Syllabus: 50% of the questions will be from research methodology and remaining 50% from bachelor's/master's level electronics and communication engineering Research Methodology: Experimental design; fundamentals of sampling; data types, quality measurement; processing and analysis of data; hypothesis testing (parametric, nonparametric), theory of probability. Electronics and Communication: Engineering mathematics, Networks, Signal and systems, Electronic device, Analog circuits, Digital circuit, Control systems, Communications, Electromagnetics

13. ATAL BIHARI VAJPAYEE SCHOOL OF MANAGEMENT AND ENTREPRENEURSHIP (ABVSME)

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of School	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Atal Bihari Vajpayee School Of Management And Entrepreneurship (Abvsme)	Ph.D. in Management – SMEH (914)	<p>Syllabus for Ph.D. JNUEE</p> <p>Research Methodology</p> <p>Unit:-1 Foundation of Research Unit:-2 Types of Research Unit:-3 Research design Unit:-4 Literature Review Unit:-5 Data measurement and scaling Unit:-6 Sampling design Unit:-7 Data Collection, Data Analysis & Tools Unit:-8 Report Writing and Ethics in research</p> <p>Management</p> <p>Unit 1:-Management, Functions, Communication, Decision Making, Organisation Structure and Design, Managerial Economics, Demand analysis, Market Structures, National Income, Inflation, Business Ethics & CSR, Ethical Issues & Dilemma, Corporate Governance, Value Based Organisation</p> <p>Unit 2:-Organisational Behaviour, Individual Behaviour, Group Behaviour, Interpersonal Behaviour & Transactional Analysis, Organizational Culture & Climate, Work Force Diversity & Cross Culture Organisational Behaviour, Emotions and Stress Management, Organisational Justice and Whistle Blowing.</p> <p>Unit 3:- Human Resource Management, Strategic Role of Human Resource Management, Competency Mapping & Balanced Scoreboard, Career Planning and Development, Performance Management and Appraisal, Organization Development, Change & OD Interventions, Talent Management & Skill Development, Employee Engagement & Work-Life Balance, Industrial Relations, Trade Union & Collective Bargaining, International Human Resource Management, Green HRM</p> <p>Unit 4:-Accounting Principles and Standards, Preparation of Financial Statements, Financial Statement Analysis, Preparation of Cost Sheet, Marginal Costing, Cost Volume Profit Analysis, Standard Costing & Variance Analysis, Financial Management, Concept & Functions, Capital Structure, Budgeting and Budgetary Control, Types and Process, Zero Base Budgeting, Leverages</p> <p>Unit 5:-Value & Returns, Capital Budgeting, Dividend, Mergers and Acquisition, Negotiations, Leveraged Buyouts, Takeover, Portfolio Management, Derivatives, Working Capital Management, International Financial Management, Foreign Exchange Market, Financial Market operation.</p> <p>Unit 6:-Strategic Management, Strategic Analysis, Internal Analysis, Strategy Formulation, Retrenchment, Integration and Diversification, Business Portfolio Analysis, Strategy Implementation.</p> <p>Unit 7:- Market Segmentation, Positioning and Targeting, Product and Pricing Decision, Place and Promotion Decision, Consumer and Industrial Buying Behaviour, Brand Management, Service Marketing, Customer Relationship Marketing, Retail Marketing, Emerging Trends in Marketing, International Marketing, Rural Marketing, Digital & Social Marketing, International Business, Foreign Direct Investment, Role of International Financial Institutions.</p> <p>Unit 8:-Entrepreneurship Development, Intra-preneurship, Innovations in Business,</p>

			<p>Business Plan and Feasibility Analysis, Sickness in Small Industries, Institutional Finance to Small Industries</p> <p>Unit 9:-State participation in business, Interaction between Government, Business and different Chambers of Commerce and Industry in India; Government's policy with regard to Small Scale Industries; Government clearances for establishing a new enterprise; Public Distribution System; Government control over price and distribution; Consumer Protection Act (CPA) and The role of voluntary organizations in protecting consumers' rights; New industrial policy of the government : liberalization, deregulation and privatization; Indian planning system; Government policy concerning development of backward areas/regions; The responsibilities of the business as well as the Government to protect the environment; Corporate Governance; Cyber laws.</p> <p>Unit 10:-Conceptual foundations of information systems; Information resource management; Types of information Systems; System Development management life-cycle, Designing online and distributed environments; Implementation and control of project; Trends in information technology; Managing data resources-Organizing data. DSS and RDBMS; Enterprise Resource, Planning (ERP), Expert systems, e-Business architecture, e-Governance; Information systems planning, Artificial Intelligence, Big Data, Data Warehousing, Data Mining, and Knowledge Management.</p> <p>Unit 11:- Operation Research Linear programming-problem formulation, simplex method and graphical solution, sensitivity analysis. Fundamentals of operations management, Facility Location and Layout, Scheduling, Organizing for production; Aggregate production planning, capacity planning, plant design: process planning, plant size and scale of operations, Management of facilities; Line balancing; Equipment replacement and maintenance; Production control; Supply chain management-vendor evaluation and audit; Quality management; Statistical process control, Six Sigma; Flexibility and agility in manufacturing systems; World class manufacturing; Project management concepts, R&D management, Management of service operations; Role and importance of materials management, value analysis, make or buy decision; Inventory control, MRP; Waste management.</p>
--	--	--	--

14. SPECIAL CENTRE FOR STUDY OF NORTH EAST INDIA

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Special Centre for the Study of North East India (SCSNEI)	North East India Studies- NESH (882)	<ul style="list-style-type: none"> Understanding North East India and its neighbouring areas: history, culture, society, politics, economic development, ecology and contemporary policies Research Methodology: Various interdisciplinary methods such as approaches to social sciences, qualitative, quantitative, interpretative and historical methods In addition to the above, the syllabus covers themes pertaining to North East India, such as religion and society, tribes and ethnicity, government and politics, economic development, frontiers and borderlands, and cultural histories.

15. SPECIAL CENTRE FOR MOLECULAR MEDICINE

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Special Centre for Molecular Medicine (SCMM)	Molecular Medicine- CMMH (905)	<p>Section A; General Aptitude/Research Methodology Section B; Different Subject Areas of Molecular Medicine</p> <p style="text-align: center;">Section A</p> <p>Aptitude / Research Methodology Basic Maths; geometry, statistics, Arithmetics, Log, Basic knowledge of Computer science. Chemistry: Concept of Molarity, Normality, Related to Periodic Table, Organic Chemistry, Synthesis, Thermodynamics, Entropy, Enthalpy, Free energy, Law of Mass action, Reaction kinetics Physics; Newton's law, radioactivity, Electricity, capacitance, optics, sound, gravity, spectroscopy. Basic Biology; Zoology/Botany - classification/Evolution Biology/Population Biology, General Aptitude and reasoning.</p> <p style="text-align: center;">Section B</p> <p>Biochemistry: Metabolism, Nutrition, Biomolecules, Hormones, Enzymes, Omics. Microbiology: Bacterial genetics, Antibiotics mode of action, Infectious disease, Industrial Biotechnology. Physiology, Diseases, Pharmacology, Genetics, Molecular Biology, Developmental Biology, Zoology, Population genetics. Botany, Molecular Biology, Advanced Chemistry; Spectroscopy, Molarity/Normality, Radioactivity, Atomic Structure, Acid base, pH. Medicinal Chemistry: Drug-receptor interaction, DNA, Protein, Hormones as receptor, Pharmacokinetics, G-protein coupled receptor, Pharmacodynamics. Cell biology: Organelles, Cell-Cell interaction, Cell signalling/ trafficking, Cell cycle. Drug resistance. Immunology Entrance test will contain questions on research methodology/experimental techniques in the relevant areas.</p>

16. CENTRE FOR THE STUDY OF LAW & GOVERNANCE

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for the Study of Law & Governance (CSL&G)	Law & Governance – CLGH (907)	<p>The test will have a 50% weight for social science research methods and 50% weight for domain knowledge covering the disciplines of Economics, Political Science, Sociology, Public Administration, Anthropology, and Law. The questions will be at the level of an advanced Masters and all candidates will be required to attempt questions from all these disciplines.</p> <p>The broad coverage of the subject areas of these disciplines are as follows:"</p> <ul style="list-style-type: none"> Political Science: concept and theories of governance; theories of the State,

			<p>democracy and development; decentralisation; global governance; politics of identity; multilevel governance; civil society and social capital; neoliberalism and globalisation; social justice; gender, development and governance; and, public administration.</p> <ul style="list-style-type: none"> • Law: Constitution and administrative law, criminal law, law and technology, environmental law, corporate laws and labour laws. • Economics: Microeconomics, macroeconomics, development economics, political economy, basic of institutional economics and law and economics with particular focus on transactions costs and property rights, Economic Policy. • Sociology: Sociological Theory, Kinship, Sociological Perspectives on Caste, Gender and Race; Sociology of Law; Culture and Society, Visual Culture. New Social Movements, Urban studies.
--	--	--	--

17. SPECIAL CENTRE FOR NANO SCIENCES

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	<p style="text-align: center;">Syllabus for Entrance Examination</p> <p>[Type of Questions for Entrance Examination: Multiple choice questions]</p>
1	Special Centre for Nano Sciences	Nano Sciences – NNSH (908)	<p style="text-align: center;"><u>NNSH (908) Nanoscience</u></p> <p style="text-align: center;"><u>Part-A: Research Methodology (Common for all)</u></p> <p>1. General Science: General appreciation and understanding of science including matters of everyday observation and experience.</p> <p>2. Environmental awareness: Pollution and its impacts, climate change, sustainable development. 3. Current events: Knowledge of significant national and international events.</p> <p>4. General mental ability and reasoning: Reasoning and analytical abilities.</p> <p>5. Elementary Computer Science: Basic computer awareness and its uses.</p> <p>6. Interactive English: Grammar, vocabulary, sentence completion, usage, synonyms, antonyms, one word substitute, idioms/phrases, error detection and comprehension.</p> <p>7. Information and Communication Technology (ICT): Terminology and abbreviations used in ICT, applications of ICT in academics and research.</p> <p>8. Research aptitude: Basic Concepts- 1. Meaning, nature, significance and types of research. 2. End to end process of research, Formulation of research problem, Design strategies in Research- Descriptive Studies, Analytic Studies, Experimental studies, Intervention trials etc., research proposal, Synopsis, Hypothesis, Data collection, Literature survey, Sampling, Interviewing, questionnaire, Data processing, Interpretation, Report writing, Bibliography, Data presentation and summarization, Graphical presentation of data, Research Ethics. 3. Thesis/ Dissertation writing. 4. Article, research paper, seminar, conference, symposium, workshop etc. 5. Role of governing bodies/research organizations like UGC, CSIR, ICAR, ICSSR, ICPR, ISRO, DRDO etc. in research and development. 6. Role and use of computers in research.</p> <p>9. Basic concepts of Statistical methods for research (Probability, Test of significance, Standard deviation, Measures of central tendency, Measures of variability, Measures of Relationship – Correlation, Hypothesis Testing – parametric and non-parametric tests, Proportions, Relative risk, Odds ratio, Student t test, Anova, Error bars)</p> <p style="text-align: center;"><u>Part-B: Subject Specific</u></p> <p style="text-align: center;"><u>In Part-B, candidate can choose any one of the Subject Streams: (Physical Sciences) or (Biological Sciences) or (Chemical Sciences) or (Engineering Sciences) for appearing in the Entrance Exam</u></p> <p><u>Physical Sciences</u></p> <p>Interference. Diffraction. Polarization. Basic principles of quantum mechanics: Postulates; Wave-particle duality. Commutators and Heisenberg uncertainty principle. Schrödinger</p>

equation (time-dependent and time-independent). Exactly- solvable systems: particle-in-a-box, harmonic oscillator and the hydrogen atom. Tunneling through a barrier. Electrostatics: Gauss's law and its applications, Laplace and Poisson equations, boundary value problems. Magnetostatics: Biot-Savart law, Ampere's theorem. Electromagnetic induction. Scalar and Vector potentials, Maxwell equations. The first and second laws of thermodynamics, Thermodynamic functions, Heat capacity, enthalpy, entropy. Bonding in solids, Crystal structures. Bravais lattices. Miller indices. Reciprocal lattice. Bragg's law and applications; Diffraction and the structure factor. Defects in Solids, Elastic properties, phonons, lattice specific heat. Free electron theory and electronic specific heat. Drude model of electrical and thermal conductivity. Hall effect and thermoelectric power. Electron motion in a periodic potential, band theory of solids: metals, insulators and semiconductors. Dielectrics. Ferroelectrics. Magnetic materials. Superconductivity: type-I and type-II superconductors.

Biological Sciences

Biomolecules and their relevant interactions: Biomolecules (carbohydrates, lipids, proteins, nucleic acids and vitamins). Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.). Biophysical chemistry (pH, buffer, reaction kinetics, thermodynamics, colligative properties). Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers. Principles of catalysis, enzymes and enzyme kinetics, enzyme regulation and isozymes.

Cell Biology: Membrane structure and function. Cellular organization and function of organelles. Cell division and cell cycle. Cell communication and cell signalling. Microbes and infectious disease biology. Cancer.

Fundamental Processes: DNA replication, repair and recombination. RNA synthesis and processing. Protein synthesis.

Immunology: Innate and adaptive immunity, antigens, antibody, antigen-antibody interactions, immune responses, immune response during bacterial (tuberculosis), parasitic (malaria) and viral (HIV) infections, congenital and acquired immunodeficiencies, vaccines.

Genetics: Gene, Allele, mutation types, cause and inheritance biology.

Human Physiology: Blood, coagulation, blood groups, haemoglobin. Endocrine glands, hormones and diseases, neuroendocrine regulation.

Chemical Sciences

Stereochemistry: IUPAC nomenclature, Configuration, Chirality, Isomerism. Conformational analysis and its effect on reactivity. Organic Reaction mechanisms, Free radicals, mechanism of nucleophilic substitution (SN1 and SN2) and elimination (E1 and E2). Addition to carbon-carbon multiple bonds, addition to alkenes and alkynes, transition metal organometallics. Addition to carbon-hetero multiple bonds. Oxidation and Reduction.

Spectroscopy: Structure elucidation using UV-Vis, IR, ¹H and ¹³C NMR. **Photochemistry and pericyclic reactions:** Features, classification. **Natural Products and drugs of natural origin. Solutions:** Ideal and non-ideal, methods of expressing concentrations of solutions, activity and activity coefficient, Raoult's law, relative lowering of vapour pressure, molecular weight determination, Osmotic pressure, Elevation of boiling point and depression of freezing point.

Theory of Gases: Kinetic theory of gases, Maxwell-Boltzmann distribution law. **Chemical Thermodynamics:** Reversible and irreversible processes, First, second and third laws of thermodynamics, Ideal and non-ideal gases, Gibbs and Helmholtz energy, Free energy change and spontaneity. **Chemical and Phase Equilibria:** Law of mass action, Effect of temperature on K, Ionic equilibria in solutions, pH and buffer solutions, Hydrolysis, Solubility product; Phase equilibria-Phase rule. **Electrochemistry:** Conductance, Transport number, Galvanic cells, EMF and Free energy. **Chemical Kinetics:** Reactions of various order, Arrhenius equation, Collision theory, Theory of absolute reaction rate, Chain reactions, Enzyme kinetics, Catalysis.

Periodic Table: Periodic classification of elements and periodicity in properties. **Chemical bonding and shapes of compounds:** Types of bonding; VSEPR theory and shapes of molecules, hybridization, dipole moment, lattice energy. **Main group elements (s and p blocks):** Group relationship and gradation in properties. **Transition metals and inner transition metals (d and f block):** Characteristics of 3d elements, oxide, hydroxide and salts of first row metals, coordination complexes, metal complexes.

Analytical Chemistry: Principles of qualitative and quantitative analysis, acid-base, oxidation reduction and precipitation reactions, use of indicators and organic reagents in inorganic analysis, radioactivity, nuclear reactions, applications of isotopes.

Engineering Sciences

			<p>Unit-I: Electronic Transport in semiconductor, PN Junction, Diode equation and diode equivalent circuit. Breakdown in diodes, Zener diodes, Tunnel diode, Semiconductor diodes, characteristics and equivalent circuits of BJT, JFET, MOSFET, IC fabrication-crystal growth, epitaxy, oxidation, lithography, doping, etching, isolation methods, metalization, bonding, Thin film active and passive devices.</p> <p>Unit-II: Superposition, Thevenin, Norton and Maximum Power Transfer Theorems, Network elements, Network graphs, Nodal and Mesh analysis, Zero and Poles, Bode Plots, Laplace, Fourier and Z-transforms. Time and frequency domain responses. Image impedance and passive filters. Twoport Network Parameters. Transfer functions, Signal representation. State variable method of circuit analysis, AC circuit analysis, Transient analysis.</p> <p>Unit-III: Rectifiers, Voltage regulated ICs and regulated power supply, Biasing of Bipolar junction transistors and JFET. Single stage amplifiers, Multistage amplifiers, Feedback in amplifiers, oscillators, function generators, multivibrators, Operational Amplifiers (OP AMP) - characteristics and Applications, Computational Applications, Integrator, Differentiator, Wave shaping circuits, F to V and V to F converters. Active filters, Schmitt trigger, Phase locked loop.</p> <p>Unit-IV: Logic families, flip-flops, Gates, Boolean algebra and minimization techniques, Multivibrators and clock circuits, Counters-Ring, Ripple. Synchronous, Asynchronous, Up and down shift registers, multiplexers and demultiplexers, Arithmetic circuits, Memories, A/D and D/A converters.</p> <p>Unit-V: Modulation index, frequency spectrum, generation of AM (balanced modulator, collector modulator), Amplitude Demodulation (diode detector Other forms of AM: Double side band suppressed carrier, DSBSC generation (balanced modulator), Single side band suppressed carrier, SSBSC generation (filter method, phase cancellation method, third method), SSB detection, Frequency and Phase modulation, modulation index and frequency spectrum, equivalence between FM and PM, Generation of FM (direct and indirect methods), FM detector (slope detector)</p>
--	--	--	--

18. SPECIAL CENTRE FOR DISASTER RESEARCH

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	Special Centre for Disaster Research (SCDR)	Disaster Studies - DSSH (911)	<p>Syllabus for Entrance Exam:</p> <p>PART A: Research Methodology in Disaster Studies, Surveys, Statistical Tools & Analysis, Data Collection and Management, Research approaches (qualitative and quantitative), Techniques of pre and post-disaster needs assessment (PDNA), Comparative Case Study Methods for evaluating governance and community capacity for last mile service delivery. Ethics in research.</p> <p>PART B:</p> <ol style="list-style-type: none"> Constitutional Law, Indian Law and International Law related to Disasters; Theories and Practices related to Governance, International Law and Practice, Theory and Practice related to legal regime on Environment, Human Rights and Development, Implementation of Disaster Risk Reduction and Disaster Risk Governance Policies.

			<ol style="list-style-type: none"> 2. Social Sciences and Anthropology of Disasters; Vulnerable communities in fragile environmental and ecological regions; Geography, Environment and Disasters; Geospatial Mapping and human security. Role of NGOs, INGOs in disaster management and role of humanitarian agencies and humanitarian aid. Man-made disasters- war and conflict. 3. Disaster Economics, Planning and Preparing against economic losses, Role of Macro and Micro level economic institutions. 4. Database, Artificial Intelligence and Early Warning Systems in the management of rescue and relief operations. 5. Public Health and Disasters, Health Emergencies and Disasters, Pandemics and Public Health Response, Occupational Health and Safety, Environmental Health issues.
--	--	--	---

19. Special Centre for National Security Studies (SCNSS)

The pattern of JNUEE 2022-23 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	Special Centre for National Security Studies (SCNSS)	National Security Studies – NSSH (916)	<ol style="list-style-type: none"> 1. Domestic/Internal Security Studies of India <ol style="list-style-type: none"> a. Insurgencies in the North East b. Left Wing Extremism c. Terrorism in Heartland d. Coastal Security 2. External Security Studies of India <ol style="list-style-type: none"> a. India-Pakistan-China Military Balance b. International Terrorism c. Maritime Security d. Geopolitics & Geoeconomics and National Security e. Nuclear doctrine, regime & security 3. Indian Strategic Thoughts and Military History of India <ol style="list-style-type: none"> a. Kautilya's Arthashastra b. The Kural c. Kamandaka's Nitishastra d. Panchtantra and Hitopdesa e. India-Pakistan War of 1965, 1971, 1999 f. India-China Border War of 1962 4. Emerging Technology and National Security <ol style="list-style-type: none"> a. Science and Technology and National Security b. Science Diplomacy c. Biological Warfare, Chemical Warfare, Cyber warfare d. Artificial Intelligence, Genetic Engineering, Quantum Computing, Nanotechnology, Unmanned Aerial Vehicles 5. Studies of External Border of India <ol style="list-style-type: none"> a. Frontiers & Boundaries b. Border disputes c. India-Pakistan border d. India-Bangladesh border e. India-China border f. India-Myanmar border g. India-Nepal border h. Maritime border

			<ol style="list-style-type: none"> 6. Non-traditional Security Studies of India <ol style="list-style-type: none"> a. United Nation and Human Security b. Contemporary Non-Traditional Security Discourses c. Environmental Security (Health, Food and Water Security) d. Terrorism and Transnational Crime e. Migration and Demography 7. Research Methodology for National Security Studies of India <ol style="list-style-type: none"> a. Research Methods, Types and formulation of Research Design b. Hypotheses: Functions, Characteristics and Types; Formulation of Research Problem; Review of Literature; Concepts and Variables. c. Sampling: Types of sampling; Data Collection-Primary and Secondary sources; tools of data collection d. Introduction to Basic Statistics e. Research ethics and plagiarism 8. Remote sensing and GIS
--	--	--	--