Information Brochure

for

Admission to Ph.D. Programmes June, 2026
[Except for QIP Applicants]

IMPORTANT DATES:

1. **Last Date of Submitting e-Applications for Entrance Test:**
   Tuesday, 07th April, 2026
2. **Day & Date of Entrance Test:**
   Sunday, 12th April, 2026
3. **Last Date of Submitting e-Applications for Ph.D. Admission:**
   Sunday, 03th May, 2026
4. **Tentative Dates of Interview:**
   18th to 21st May, 2026

National Institute of Technical Teachers Training and Research

(Deemed to be University under Distinct Category)
Sector - 26, Chandigarh - 160 019
Tel: 0172-2759594; 0172-2759593
E-mail: **phd.entrance@nitttrchd.ac.in** (for entrance test); **phd.admissions@nitttrchd.ac.in** (for admission) Website:
www.nitttrchd.ac.in

June 2026 Session

CONTENTS

National Institute of Technical Teachers Training and Research

(Deemed to be University under Distinct Category)
Sector 26, Chandigarh

Ph.D. PROGRAMMES

1.   About the Institute

In realization of the need for training better quality technicians to meet the large-scale industrialization of the country, the Ministry of Education, Government of India, on the recommendations of All India Council for Technical Education (AICTE), established four Regional Technical Teachers' Training Institutes (now National Institute of Technical Teachers' Training & Research, (NITTTR) at Bhopal, Chandigarh, Chennai and Kolkata in 1967. The institute at Chandigarh, started in collaboration with Royal Netherlands Government (up-to 1974), was designed to meet the requirements of developing polytechnic education in the northern region covering the then states/UTs of Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan, Uttar Pradesh, Uttarakhand, Delhi and Chandigarh. The institute during this time acted as a resource system to technical education and provided guidance at national, state and institution levels in policy formulation, planning and management, quality controls etc. The institute is registered under the Societies Registration Act, 1860 and is managed by the Executive Council.

To achieve its stated objectives, the institute undertakes the following spectrum of activities: Education and Training Programmes; Curriculum Development; Instructional Material Development; Research and Development; Extension Services; Consultancy in Technical Education and Technology areas. Keeping in tune with the various emerging needs of the country, the institute presently extends its services in the following areas as well: Media Development including information resources, their acquisition, storage and retrieval; Entrepreneurship Development; Industry Institute Interaction; Continuing Education for Working Engineers/Technicians; Rural Development; Transfer of Appropriate Technology to Rural Areas.

Since 2003, engineering colleges in the northern region have been brought under the purview of this institute as per the directions of Ministry of Education (then the MHRD). Since then, this institute has been conducting many short-term courses in various subjects for engineering college teachers, in addition to catering to their other needs. Further, the institute is also organizing induction training programmes and content based short term courses through information and communication technologies (ICT).

The status of the institute was elevated to a National Institute and renamed as National Institute of
Technical Teachers Training and Research in November, 2003 with an objective to play a larger role for the improvement of Technical Education in the country. Looking into the consistent performance and contribution in Technical Education System, the institute was granted the status of Deemed to be University under Distinct Category in February, 2024.

2. Vision, Mission and Quality Policy of the Institute

Vision

To be a global centre of excellence for capacity building through transformative education, training and research.

Mission
- Design and implement dynamic and flexible curricula to inculcate problem solving, design thinking, creativity, innovation and research through inter-disciplinary and multi-disciplinary programmes for inclusive and equitable education.
- Develop professionals with ethics, social values and aptitude for lifelong learning.
- Develop and implement innovative instructional and evaluation approaches for continuous quality improvement in higher education system.
- Develop and provide repository of instructional resources for capacity building.
- Collaborate with academia, research organizations, industry and other similar entities both at National and International level with sustainability perspective.

Quality Policy

NITTTR, Chandigarh is committed to provide high quality and customized education, training, Research and Development (R&D) and extension services to technical and vocational education system, industry and community. The institute shall develop leadership in technical teacher training and provide educational products and services to enable the technical education system to achieve excellence internationally.

3. Objectives of Ph.D. Programmes

The Ph.D. Programmes are designed to prepare teachers for Engineering, Management, Applied Sciences and related disciplines, working professionals for Corporate Sector and scientists for R & D organizations, having right perspective and breadth of knowledge related to their respective fields of specialization. The Institute provides them conducive environment to develop a strong base of scientific methods to pursue research, deep understanding of their chosen areas of specialization, motivation to learn continuously, interact with multi-disciplinary groups and dare to exploit opportunities offered by cutting-edge technologies. Above all, the scholars will develop the capacity for free and objective enquiry, courage and integrity, awareness and sensitivity to the needs and aspirations of the society.

4. Categories of Admissions

NITTTR, Chandigarh offers Ph.D. Programmes in the following modes:

Regular Mode
- Full-time Ph.D. under Sponsored (by Institute/Industry/Other Organizations/ Self) Scheme

Modular Mode

- Ph.D. under Sponsored (by Institute/ Industry/ Other Organizations/ Self) Scheme.
- Employees of NITTTR Chandigarh.

Employees of NITTTR, Chandigarh and other organizations are eligible to pursue Ph.D. Programme under Modular Category with the prior approval and No-Objection Certificate (NOC) from their parent organization, clearly stating that:

a. The candidate is permitted to pursue studies on a part-time basis.
b. His/her official duties permit him/her to devote sufficient time for research.
c. If required, he/she will be relieved by his/her employer from the duty to complete a mandatory stay (including the course work) of at least 36 weeks at NITTTR Chandigarh during the entire duration of the Ph.D. programme.

5. Fellowships/Scholarships

- Regular scholars admitted under sponsored schemes can apply for various fellowships like INSPIRE, CSIR, AICTE, Minority Community Fellowship and such other schemes. Funding support or sponsorship from industry or any other agency may also be availed.

6. Disciplines/Branches and Number of Seats Offered

- The institute offers Ph.D. programme in the department/areas of Civil Engineering, Computer Science & Engineering, Electrical Engineering, Electronics & Communication Engineering, Mechanical Engineering, Management, Applied Sciences (Physics & Mathematics), Curriculum Development, Rural Development, Education and Educational Management, Media Engineering, Information Management and Emerging Engineering, Entrepreneurship Development and Industrial Coordination.

- For admission in the June 2026 session, the number of Ph.D. seats available Department-wise are as follows:

S. No.	Department	Available Seats	Areas of Specialization
1	Applied Sciences	Physics: 02	Physics: Materials Science and Engineering (Thin Films, Nano materials, Electronic Materials, Energy Materials, Polymeric Materials, Glasses, and Ceramics), Nanotechnology inspired energy storage materials and devices, Nanotechnology
		Mathematics: 01	Mathematics: Mathematical Programming, Optimization, soft computing, Data Analysis

2	Civil Engineering	02	Structures Design, Clean Technologies Repair & Rehabilitation, Green Materials and Sustainable Constriction, Construction Management, Structure Dynamic, Masonry, Dampers, Adobe Construction, Heritage Structures, Concrete Technology and Pavement Design
3	Computer Science and Engineering	05	Cyber Security, Wireless Networks, Network Security, Data Science, Deep Learning, AI/ML/DL applications, Cloud Computing
4	Curriculum Development	02	Innovative Curriculum and Learning Design, Curriculum Quality Audit, Innovative Curriculum Assessment Tools & Methodologies, Effective Curriculum Implementation Techniques and Web Technologies, Effective Implementation of Curriculum in Technical Education
5	Electronics and Communication Engineering	01	Heterogenous Wireless Sensor Networks, Self-Configured Wireless Sensor Networks, Wireless Communication, Embedded Systems, Digital System Designing
6	Information Management and Emerging Engineering	04	Image Processing, IoT, VLSI Design
7	Mechanical Engineering	03	Robotics, Advanced Manufacturing, CAD, CAM,
8	Media Engineering	02	Digital Media and its Applications, Media Development, Media Implementation, Media Management
9	Rural Development	02	Rural Development, Sustainable Agriculture Management, Appropriate Technology, Sustainable Rural Development, Empowerment of Weaker Sections, Climate Change and Disaster Management, Civil (Structures), Earthquake Engineering, Structure Dynamics, Masonry Structures

Note: Reservation policy of Government of India for SC/ST/OBC-NCL/EWS/PwD candidates will be followed in admission to Ph.D. program

7. Eligibility Criteria for Ph.D. Admission

In-service Teachers/Working Professionals/Fresh Master's Degree holders aspiring to be teachers are eligible to apply for admission in Ph.D. programmes, subject to the following minimum eligibility criteria:

- Master's Degree or Equivalent in Engineering/ Applied Sciences/Management/Relevant area, with a minimum CGPA of 5.5 on a 10-point scale or 55% (50% in case of SC/ ST/ PWD/ OBC/ EWS) marks in aggregate where marks are awarded.
- Qualified GATE/NET/other such national fellowship test **OR** Ph.D. Entrance Test of NITTTR, Chandigarh in the respective discipline.
- The Ph.D. Entrance Test conducted by NITTTR Chandigarh will have a validity of 2 years from the date of test.
  - a. For Entrance Test see Appendix-I
  - b. The entrance test will consist of 50 Multi-Choice Questions (MCQs) and the duration of the test will be 1 hour. The test will comprise of 25 questions from the

relevant discipline and the remaining 25 questions related to basics of research methodology.

- Note: For the candidates opting for Ph.D.in modular mode, **an experience of minimum two years** is essential.
- Qualifying the Interview of the eligible candidates by Ph.D. Admission Committee of NITTTR Chandigarh.
- Any other additional eligibility criteria as per sponsoring/funding agency's requirement will also be applicable.
- For regular employees of NITTTR Chandigarh, Regulatory Bodies like AICTE/UGC etc., National Laboratories, Public Sector Undertakings and Limited Industry/Company having a minimum of 10 years of total work experience, the Director/Vice Chancellor may waive off the condition of a written test on the recommendation of a five-members committee

8. Programme Duration

8.1 Ph.D. Programme shall be for a minimum duration of three (3) years for regular and four (4) years for modular candidates from the date of admission, the total duration being six (6) years for both regular and modular modes, without any extension.

8.2 A candidate does not require to seek any extension for submission of thesis upto 6 years from the date of admission. After 6 years, a maximum of two years extension (one year at a time) may be granted by the Director/Vice Chancellor, on the recommendation of the concerned Supervisor and Dean (Academics and Students) on the basis of valid justifiable grounds. The total period for completion of Ph.D. programme should not exceed 8 (eight) years from the date of admission in such cases. 8.3 The female candidates and Persons with Disability (more than 40% disability) may be allowed a further relaxation of two (02) years beyond 08 years. The total period for completion of Ph.D. programme should not exceed 10 (ten) years from the date of registration in such cases.

8.4 The female candidates may be provided Maternity Leave/ Child Care Leave in the entire duration of Ph.D. up to 240 days. These 240 days shall be inclusive of the maximum stipulated period of 10 years.

8.5 If a candidate fails to submit the thesis within the stipulated period of 6 years (8 years with extension and 10 years for females and Persons with Disability with extension) as per the above-mentioned clauses, his/her registration will automatically stand cancelled.

8.6 **Coursework Requirements**:
The following outline details the coursework requirements for the Ph.D. Programme:

For Regular Mode:

S. No.	Paper Title	Hours per Week		Credits	Marks (Internal Evaluation)	Marks (End-semester Examination)
		Lecture	Seminar			
1	Research Methodology	4	---	4	50	50
2	Research Seminar	---	3	2	50	---

| 3 | Research and Publication Ethics | 2 | --- | 2 | 50 | --- |
| 4 | Elective* | 4 | --- | 4 | 50 | 50 |

For Modular Mode:

S. No.	Paper Title	Hours per Week		Credits	Marks (Internal Evaluation)	Marks (End-semester Examination)
		Lecture	Seminar			
1	Research Methodology	12	---	4	50	50
2	Research Seminar	---	9	2	50	---
3	Research and Publication Ethics	6	---	2	50	---
4	Elective*	12	---	4	50	50

Note:
- A candidate must secure 55% marks in each course to qualify the course work examination.
- The RAC may recommend **waiver of pre-PhD course work** if the candidate has already completed the pre-PhD course work successfully from a UGC recognized university/deemed-University.

9.   Admission Procedure

9.1   e-Applications may be submitted through the link available on https://www.nitttrchd.ac.in/core/phd.php along with self-attested copy of relevant documents and proof of payment of non- refundable fee of Rs. 1000/- on or before the prescribed date.
The candidates applying for more than one discipline should submit separate applications along with non-refundable fee of Rs.1000 for each discipline applied. A candidate is permitted to apply for a maximum of two disciplines only.

9.2   Awardees of JRF/National/ International fellowship for pursuing Ph.D. may seek admission in the Ph.D. Programmes throughout the year.

9.3   Eligible candidates will be called for an interview to assess the following aspects:
   a.   the candidate's competence for the proposed research;
   b.   the feasibility of conducting the proposed research work at the institution;
   c.   The likely contribution of the proposed area of research to new/additional knowledge as per the mandate of NITTTR Chandigarh.

9.4   The institute may decide the number of eligible candidates to be called for an interview based on the number of Ph.D. seats available in the respective department.

9.5   The candidate must secure at least 50% marks in the interview to qualify.

9.6   For candidates who have qualified any national level test such as GATE/NET etc., the selection will be based on Interview only.

10.   Supernumerary Seats in Ph.D. Programme

One supernumerary seat in exceptional situation be created under any of the following categories:

10.1   An international/Foreign student interested in Ph.D. having fellowship/financial support from overseas for at least 2 years and fulfilling the Ph.D. enrolment criteria.

10.2   A Research Supervisor having an international research project with minimum financial support for at least 2 years and fulfilling the Ph.D. enrolment criteria by the candidate.

10.3   Candidate with the award of any national fellowship funded by Government of India like PM Fellowship/National Fellowship for Scheduled Caste Students (NFSC)/Maulana Azad National Fellowship/National Fellowship for Persons with Disabilities/INSPIRE etc.

10.4   A Research Supervisor having a project worth Rs.2 crores or more in Sciences and Rs. l crore or more for other subjects, be allowed to have more Research Scholars than the prescribed limit of the institute. For this purpose, the Director/Vice Chancellor of the Institute is authorized to constitute a High-Level Standing Committee consisting of two faculty members from the Institute and one from outside the Institute of the level of Director or above to decide the number of research scholar on case-to-case basis.

11.   Fee Structure

Admission Fee (One-Time at Admission only)	Rs. 5,000/-
Security (Refundable onetime)	Rs.7,500/-
During First 3 Years (Regular Mode), First 4 Years (Modular Mode)	
Academic Fee (half-yearly)	Rs. 10,000/-
Other facilities (library/internet/welfare/development etc.) (half-yearly)	Rs. 2,500/-
After 3 Years (Regular Mode), 4 Years (Modular Mode)	
Academic Fee (half-yearly)	Rs. 15,000/-
Other facilities (library/internet/welfare/development etc.) (half-yearly)	Rs. 3,500/-

Total amount payable at the time of admission is Rs. 25,000/- excluding the fees mentioned below:

- Hostel/Mess charges extra as per rules.
- Students will deposit migration fee (if any), thesis submission fee, and any other applicable fee as per norms of NITTTR, Chandigarh (Deemed to be University).

12.   Documents to be produced during Physical Reporting

- Printout of the Application Form.
- GATE score card/UGC-NET (JRF) Certificate.
- Original Photo ID Proof as per Govt. of India norms (Aadhaar Card/Passport/Driving license).
- Original Class X (High School) Board Certificate as proof of date of birth.
- Original Grade/Marks sheets of qualifying examination for all semesters.
- Original qualifying Degree/Provisional Certificate, if degree is completed.
- Original certificate of category of SC/ST/PWD/OBC/EWS, if applicable.
- Original Migration Certificate of last Institute/University attended.
- Three colour passport size photographs.
- Original Course completion certificate from the Head of University/ Institute in case result is awaited.

- Original NOC on Letter Head from the sponsoring organization (if applicable).
- One set of self-attested photocopies of the above documents.

Note: If the original certificates are not in English/Hindi, English/ Hindi version/translation of such certificates, duly certified by the Principal/Director of the graduating Institute, will be required during the verification of documents.

13. Important Dates

- Last Date of Submitting e-Applications for Entrance Test : Tuesday, 07th April, 2026
- Day and Date of Entrance Test: Sunday, 12th April, 2026
- Date of Declaration of Entrance Test Result: 20th April, 2026
- Last Date of Submitting e-Applications for Ph.D. Admission: 03rd May, 2026
- Tentative Dates of Interview: 18th to 21st May, 2026
- To Apply, please visit: https://www.nitttrchd.ac.in/core/phd.php

NOTE:

a) The complete e-Application along with copies of all certificates and fee payment proof must be submitted online on or before the last date for receipt of applications as given above.

b) Applicants should regularly visit the institute website to learn about any updates/modifications pertaining to Entrance Test and Interview for admissions.

c) No separate call letters will be issued for appearing in Entrance Test and attending the interview for admission.

d) Candidates shall appear in the Entrance Test and attend the interview for admission to Ph.D. Programmes at their own expenses.

(APPENDIX –I)

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING & RESEARCH, CHANDIGARH
(Deemed to be University under Distinct Category)

SYLLABI FOR Ph.D. ENTRANCE TEST SCHEDULED ON 12-04-2026

General Information:
- The Ph.D. Entrance Test conducted by NITTTR Chandigarh will have a validity of 2 years from the date of entrance test.
- The entrance test will consist of 50 Multi-Choice Questions (MCQs) and the duration of the test will be 1 hour. The test will comprise of 25 questions from the relevant discipline and the remaining 25 questions related to basics of research methodology.

Syllabi for Entrance Test:
- For engineering branches, the syllabus of the test will be that of the latest GATE Test for the corresponding branch.
- For Entrepreneurship Development & Industrial Coordination (EDIC) department, the syllabus of the entrance test will be that of Management (including Business Admn. Mgt./Marketing/ Marketing Mgt./Industrial Relations and Personnel Mgt./ Personnel Mgt./Financial Mgt./Co-operative Management), available on https://www.ugcnetonline.in/syllabus- new.php
- For Information Management and Emerging Engineering (IMEE) department entrance test syllabus will be of either Computer Science and Engineering or Electronics and Communication Engineering based on the choice of applicant in which he/she want to pursue.
- For Physics and Mathematics, the syllabus of the entrance test will be that of Physical Sciences and Mathematical \Sciences respectively, available on https://csirhrdg.res.in/Home/Index/1/Default/2666/78
- **For the departments of Curriculum Development Department, Education & Educational Management, Rural Development and Media Engineering the syllabi are given below:**

<u>Department of Curriculum Development</u>

- Curriculum Overview
- - Concept of curriculum and syllabus
- - Curriculum rationale by Ralph Tyler and Hilda Taba
- - Stages of curriculum development process
- - Models of curriculum development based on various approaches-Subject specialization, individual needs and social demand, their comparative strengths and weaknesses
- - Schematic representation of various models
- - Stakeholders of curriculum development, their perceptions and role
- Planning and Need Analysis
- - Introduction
- - Factors influencing curriculum decisions
- - Need Analysis surveys
- - Areas of employment
- - Assessing current and future manpower needs and its forecast
- - Tools for conducting need analysis- questionnaires, interviews and observations.
- Curriculum Design
- - Concept of curriculum design
- - Identification of objectives of curriculum
- - Data sources for curriculum design - students, subjects and society
- - Characteristics of an ideal curriculum for technical education programme
- - Various approaches in curriculum design-DACUM approach and Delphi technique.
- - Various modes of curriculum offering e.g. fixed and linear, flexible and sandwich.
- Curriculum Implementation & Evaluation
- - Factors influencing effective curriculum implementation
- - Monitoring of curriculum implementation
- - Guidelines for effective curriculum implementation
- - Role of academic planning for effective implementation
- - Networking with industry for curriculum implementation
- - Concept of curriculum evaluation – definition and purpose
- - Curriculum evaluation – approaches and models
- - Decision facilitation model – CIPP Model of curriculum evaluation, historical perspective, block diagram, purpose, aspects to be evaluated and respondents
- - Planning and execution of curriculum evaluation including time frame
- Curriculum Alignment
- - National Skill Qualification Framework (NSQF)
- - Outcome Based Education (OBE)
- - National Education Policy (NEP)
- - National Credit Framework (NCrF)
- - All India Council for Technical Education (AICTE)

*****

Department of Education and Educational Management

Educational Psychology

Concept of learning, theories of learning, Concept, theories and measurement of intelligence, personality and creativity, Understanding individual differences, Motivation: Concept, theories and factors affecting motivation.

Teaching learning Methods

Types of teaching methods (teacher-centred techniques, student-centred methods, and mixed strategy methods), Factors affecting teaching methods, Offline and online teaching environment creation

Educational Media in Teaching Learning

Education media, Classification of Education media, Relevance of media in teaching learning, Various ICT tools and social media plateform for teaching learning

Guidance and Counselling

Concept, Need and Importance of Guidance and Counselling. Difference Between Guidance &Counseling, Types of Counseling, Steps of Counseling, Organizing Guidance Services At Different Levels Of Education, Occupational Information.

Educational Evaluation and assessment

Evaluation and assessment – Concept, Need and Importance, Types, Principles, Blooms Taxonomy , Tools Of Measurement - Subjective and Objective Tools, Essay Test, Objective Test, Scales, Questionnaires, Schedules, Inventories, Performance Tests. Characteristics of a Good Measuring Instrument: Validity Reliability Norms Usability, Etc. Test Standardization. Norm-Referenced and Criterion-Referenced Tests. Scaling Standard Scores.

Professional Development

Professional Code of Ethics for Teacher Educators, Performance Appraisal, Trends in Research in Teacher Education, Innovative Practices in Teacher Education.

Leadership in Education

Leadership in Educational Administration: Meaning and Nature of Leadership Theories of Leadership Styles of Leadership Measurements of Leadership, Decision Making

New Education Policy, 2020

Concept, Salient Features and Characteristics

*****

Department of Rural Development

- **Rural Development**
  Major Rural Development plans and programmes India adopted by government of India, Impact of Various schemes, Target Area Approach and Target Group Approach of Planning Commission, Major Schemes adopted by Government of India under five year plans and its impact, major schemes of Rural Development in last ten years, Micro Plan and Decentralized Planning, Participatory Approach of Rural Development, Panchayati Raj and its Impact, National Rural Livelihood Mission etc.

- **Sustainable Agriculture Management**
  Positive and Negative impact of green revolution, Degradation of Soil, Imbalance of soil nutrients, Chemical Residues and Food Toxicity and ill impact on human and cattle health, Various techniques of organic farming and soil fertility enhancing techniques, Composting and application of bio-fertilizers, Bio pesticides, and bio- controls, Mixed and Multi-crops and its bio-diversity, Mixed Farming (Agriculture and livestock rearing), good agricultural practices, value addition, processing and marketing, Demands of herbal, organic and nutritious food products, promotion of herbal and medicinal plants cultivation, marketing of organic produce herbal and Ayurvedic products

- **Appropriate Technology**
  Concept of Appropriate Technology, Purpose of Transfer of Technologies in Rural India, Local Demands based technological interventions, indigenous technologies, various low cost and sustainable technologies in the field of agriculture, housing, rural sanitation, waste water treatment, Phyto-remediation techniques, local and vernacular architecture, green building, water resources management, watershed management techniques, traditional storage and food processing techniques.

- **Sustainable Rural Development**
  Measures towards achieving Sustainable Development Goals by adopting right techniques and technologies, Development of an integrated model of rural development where we can utilise the potential of green revolution, yellow revolution, white revolution and other revolutions including application of IT in agriculture in a natural way where we can eliminate the negative factors affecting land, water and environment. Technologies for sustainable development, clean and green technologies, Promotion of small businesses and agri-industries in rural India, Promotion of circular and green economy

- **Empowerment of Weaker Sections:**
  Major Schemes for the weaker sections i.e. SCs, STs, OBCs, PWDs, Minorities and Women, Socio-economic and cultural reasons of their backwardness, how to empower them through education, technical skills, vocational skills and helping them establishing rural or urban start-ups, self-help groups and micro credits system for the economic empowerment, impact of various schemes, New strategies for their up- liftment, Role of Technical and Vocational Education and Training (TVET), Role of Polytechnics and Engineering Colleges in Rural and Community Development, Reservation policies for PWDs, Schemes for Rural Artisan

- **Climate Change and Disaster Management:**
  Climate change and the factors for climate change, greenhouse gases and its impact, north south dialogue, Conference of parties debating the Climate Issues in last ten years, Impact of Climate change in Agriculture, National Mission on Climate Mitigation, Carbon Credits in Good Agricultural Practices, Climate Smart Agricultural Practices and future planning, Basics of Disaster Management Cycles, manmade and natural hazards, Preparedness w r t various local natural hazards, technical measures and mitigation techniques in earthquake, flood, landslides, cyclone, drought and pandemic.

Department of Media Engineering

Unit 1: Introduction to Journalism and Mass Communication
- Concept of Journalism and Mass Communication, mass communication in India
- History, growth and development of print, electronic, and digital media
- Major landmarks in Indian media; Media's role in Indian state formation
- Media criticism and media literacy, Press Council and Commissions
- Models and theories of communication: normative, critical, socio-cultural
- Indian and global communication traditions; media and culture
- Introduction to AI in communication and journalism

Unit 2: Communication for Development and Social Change
- Development communication: concepts, role of media and journalism in social change
- Demographic and sociological contexts; media and specific audiences
- Post-colonial perspectives and critique of dominant development models
- NGOs, CSR, international development campaigns
- Global civil societies and communication policies
- Use of immersive technologies (AR/VR) in development communication

Unit 3: Reporting and Editing
- News: concepts, values, structure; types of reporting across media
- Writing and editing for print, electronic, and digital platforms
- National and international news agencies
- Journalism ethics, critique of western news values
- Niche and investigative reporting
- Audio-visual editing techniques and integration of AI in editing workflows

Unit 4: Advertising and Marketing Communication
- Advertising: definition, types, ethics, and theories
- Brand management, advertising campaigns and strategy
- Media planning, budgeting, and agency structure
- Language, creativity, and translation in ads
- Marketing research and consumer behaviour
- Incorporation of motion graphics and animation in digital ads

Unit 5: Public Relations and Corporate Communication
- PR and Corporate Communication: concepts and scope
- Tools, techniques, and structures across sectors
- Crisis communication and ethical PR practices
- International PR and communication audits
- Use of AI tools in corporate communication, visual branding

Unit 6: Media Laws and Ethics
- Legal and ethical frameworks in media
- Constitution of India and freedom of expression
- Defamation, libel, sedition, obscenity, and privacy laws
- Media-specific laws: Press Act, IT Act, Cinematograph Act, IPR
- Regulatory bodies: PCI, ASCI, CBFC
- AI ethics, deepfakes, and the legal implications in media creation

Unit 7: Media Management and Production
- Media management concepts and organizational structures
- Grammar of electronic media and communication design
- Economics of mass media and post-liberalisation industry trends
- Video Film Production process: Pre-production (conceptualizing, scripting, budgeting), Production (shooting, direction), Post-production (editing, audio mastering)
- Basics of lighting techniques for video shoots
- Camera operation: composition, movement, exposure control

Unit 8: ICT and Media
- Role of ICT in transforming media and communication
- Impact of digitization and computer-mediated communication
- Social networking, mobile telephony, and web-enabled media
- E-governance and online platforms in education and development
- AR/VR applications in immersive journalism and media experiences
- Interactive and animated media for education and entertainment

Unit 9: Film and Visual Communication
- Film and television theories; Indian and global cinema
- Indian cinema post-Independence, national film movements
- Film language, aesthetics, and visual culture
- Introduction to visual storytelling, framing, and cinematographic language
- Graphics and animation in visual narratives
- AI in script analysis, audience prediction, and visual content creation

Unit 10: Communication Research
- Concepts and constructs in media research
- Research design: qualitative, quantitative, mixed methods
- Tools and techniques: sampling, measurement, surveys, interviews
- Data analysis, statistical testing, and interpretation
- Media-specific research: journalism, advertising, digital platforms
- Ethical considerations and plagiarism
- Research in emerging domains: AR/VR, AI in media, animation studies

*****