(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 20-09-2026

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:**

Department of Curriculum Development

- 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)

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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

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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

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