राष्ट्रीय प्रौद्योगिकी संस्थान हमीरपुर
हमीरपुर (हि.प्र.) – 177 005 (भारत)
[भारत सरकार शिक्षा मंत्रालय के तहत एक राष्ट्रीय महत्व का संस्थान]
NATIONAL INSTITUTE OF TECHNOLOGY HAMIRPUR
HAMIRPUR (H.P.) - 177 005 (INDIA)
[An Institute of National Importance under Ministry of Education (Shiksha Mantralaya)]
{ OFFICE OF THE REGISTRAR }

NOTICE

Pursuant to the approval of the Competent Authority, the schedule for Written Examination of the ***provisionally eligible/shortlisted candidates (as per Notice No. NIT/HMR/Admn/Promotion-2024/2025/1394-1410 dated 17/02/2025)*** for promotion to the various non-teaching posts against notice No. No.NIT/HMR/Admn/ Promotion-2024/2524-28 dated 23/10/2024& even file No. 677 dated 20/01/2025 is hereby notified as under:

Sr. No.	Post Cadre	Date	Reporting Time	Venue
1	Officer Cadre	**11/03/2025 at 10:00 AM**	**11/03/2025 at 9:30 AM**	**Conference Hall, Admin. Block, NIT Hamirpur (HP)**
2	Ministerial Cadre Posts			
3	Technical Cadre Posts			

General Instructions & Scheme for the Written Examination

1. The Scheme for the Written Examination shall be as under:

i) There are 30 MCQ type questions in SECTION-I (MCQs) of the paper and each question is followed by four alternative answer options namely A. B. C and D out of which only one option is correct. You need to tick the correct one out of four options given.

ii) For every correct answer of MCQ in **SECTION-I (For Officer, Ministerial & Technical Higher/Lower Cadres)** of the paper two (2) marks will be awarded and there shall be no negative marking.

iii) A). In **SECTION-II (Descriptive) (For Officer, Technical Higher & Lower Cadres):** There are 20 descriptive type questions in the paper and each question carries 02 marks. You need to write answer neatly with clarity of thoughts in maximum 2 – 3 lines at the space provided below each question.

B). In **SECTION-II (Descriptive) For Officer, Ministerial Higher & Lower Cadres:** There shall be 08 Descriptive Type Questions, and each question shall carry 05 marks with a total of 40 marks.

2. The Candidates will use only **BLUE** pen to answer all the questions.
3. The Mobile Phones are strictly prohibited.
4. For rough work use the blank page given at end. No extra sheets shall be provided in any circumstances.
5. Use of Unfair means will lead to cancelation of candidature. Do not carry any loose paper.
6. Return the booklet to the Invigilator after completing the examination.

The Post-wise Syllabus for the Written Examination shall be as per Annexure-I.

REGISTRAR

No.NIT/HMR/Admn/Promotion-2024/ 1701 Dated: 03/03/25.

Copy to:

1. Director for his kind information.
2. Prof. Ravi Kumar, Chairman (ACoNFAR) for information.
3. All Deans, Heads, Branch/Section Heads for circulation in the respective department/section for information of the concerned.
4. FI(CC) for uploading the Notice on the Institute website as floating announcement, for information all individuals.

Annexure-I

राष्ट्रीय प्रौद्योगिकी संस्थान हमीरपुर
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HAMIRPUR (H.P.) - 177 005 (INDIA)
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Syllabus for Executive Engineer (Electrical Engg., Level-10)

1. **Basic Electrical Engineering:** Electrical circuit, circuit elements resistance, inductance & capacitance, Kirchhoff's laws, voltage source & current source, Network Theorems, duality, star-delta transformation. DC Transients AC circuits, periodic function, average & r.m.s. values, steady state behaviour with sinusoidal excitation, Phase representation, reactance & impedance, power and power factor, series & parallel circuit, resonance and quality factor, Principle of electricity generation of single phase & three phase voltages, Magnetic circuits, flux, mmf, reluctance, analogy with electric circuits, Simple calculations for composite magnetic circuits. Magnetic Coupling Coefficient Measurement of electrical current, voltage and energy in ac & dc systems, power in balanced three phase ac system, Batteries, Electrical wiring systems.
2. **Measurement and Instrumentation**: Electrical and Electronic Measurements and Measuring Instruments, PMMC, moving iron, dynamometer and induction type instruments, Extension of range, measurement of voltage, current, power, energy and power factor, Bridges and potentiometers, instrument transformers, phase and frequency measurement, Q-meters, Megger, AC and DC Bridges, oscilloscopes, Measurements of active and reactive power, Energy-meter, wattmeter and power factor meter, different transducers for electrical and non-electrical quantities, operational amplifiers, microprocessors and microcontrollers with applications.

3. **Power Systems:** Elementary idea about bulk power generation, Hydro and thermal power plants and their layouts, long distance transmission and distribution, industrial and residential distribution, Overhead and underground power transmission, safety & legal standards, Basic sub-station layout, Protective Relays, Circuit Breakers, Earthlings, lightning arrestors.

4. **Electrical Machines:** Transformers, Basic principles, construction, phasor diagram for transformer under no load condition, transformer on load, equivalent circuit, open circuit & short circuit test, DC shunt and series motor – construction, principle of working and applications, need of starters, torque and speed control; Induction motors – construction, principle of working of single phase and 3-phase motors, torque- slip characteristics; Synchronous Motors and Generators.

5. **Industrial Electronics:** Intrinsic and extrinsic semiconductor, mobility, conductivity, Hall effect, Diode, its V-I characteristics, diode resistance, capacitance, Zener Diodes breakdown mechanism (Zener and avalanche), Diode Applications: Parallel and Series Diode Configuration, Half and Full Wave rectification, Clippers, Clampers, Zener diode as shunt regulator, Voltage-Multiplier Circuits. Light-Emitting Diodes, Varactor (Varicap) Diodes, Tunnel Diodes, Transistors and their characteristics, various operational configurations and applications, Basics of Amplifiers, Thyristors and their applications, Converters and inverter circuits, UPS.

6. **Control Systems:** Basic control configurations, mathematical modelling of systems, transfer function based models, concept of positive and negative feedback, stability analysis, time and frequency domain analysis, Compensator and controller design, PID controller.

7. **Digital Electronics:** Introduction to digital electronics, Number Systems, Conversion between various number systems, Basic Logic gates. Operational Amplifiers: Introduction, Differential Amplifier Circuits, Op-Amp Basic, Practical Op-Amp Circuits (Inverting Amplifier, Non-inverting Amplifier, Unit Follower, Summing Amplifier, Integrator, Differentiator), Differential and Common-Mode Operation.

8. **Overview of a Computer System**: Block diagram and major parts of a computer, history of computer development, introduction to binary, octal, & hexadecimal numbers, ASCII code, different levels of programming languages–machine language, assembly language, and high level language.

24.02.2025
Dr. B B Sharma
Member

24/2/2025
Dr. R. K. Jarial
Member

24/2/25
Prof. R. Parti
Chairman

Syllabus for Written Test for the Post of Senior Superintendent

Sr. No.	Topic	Contents
1.	**Broad Administrative structure of NIT system.**	a) Special reference to NIT Act-2007/NITSER Act-2012; Statute; Role and Function of Board, Finance Committee, Buildings and Works Committee, Senate and NITSER Council. b) Roles and Responsibilities of Chairman BOG, Director, Deputy Director, Registrar, Deans etc.
2.	**Academic Administration**	a) International Ranking, its frameworks etc. b) Broad idea about Admission, Registration, Credit System and Academic Programmes offered by Institute. c) Examination System. d) Ordinances for UG, PG and PhD programmes. e) Conduct and Discipline Rules of Students, Rules for unfair means in examination, Scholarship, Medal and Prizes for the students. f) Senate and Convocation matters g) Reservation in admissions to UG, PG, PhD programmes
3.	**Leave/Vacation:**	a) CCS (Leave) Rules b) Type of leave and terms & conditions of its grant. c) Accumulation of Leave. d) Procedure for grant of leave.
4.	**Disciplinary Procedures**	a) CCS(Conduct) Rules b) CCS(CCA) Rules c) Procedure for disciplinary actions.
5.	Pension Rules and Retirement Benefits, Gratuity, GPF, CPF, NPS, MACP, DPC	
6.	**Purchasing**	a) Purchasing Principles GFR-2017. b) Various. purchasing Systems etc. GeM Rules and Central Public Procurement Portal.
7.	TA/DA Rules, LTC Rules, Medical Rules, Joining time rules, Rules of Deputation & Lien, Reservation in appointment, Recruitment Rules in NITs for faculty and non-faculty members.	
8.	RTI Act, Various Policies of the Institute etc.	

28/02/25

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28/02/25

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Syllabus for Written Test for the Post of Superintendent

Sr. No.	Topic	Contents
1.	**Broad Administrative structure of NIT system.**	a) Special reference to NIT Act-2007/NITSER Act-2012; Statute; Role and Function of Board, Finance Committee, Buildings and Works Committee, Senate and NITSER Council. b) Roles and Responsibilities of Chairman BOG, Director, Deputy Director, Registrar, Deans etc.
2.	**Academic Administration**	a) International Ranking, its frameworks etc. b) Broad idea about Admission, Registration, Credit System and Academic Programmes offered by Institute. c) Examination System. d) Ordinances for UG, PG and PhD programmes. e) Conduct and Discipline Rules of Students, Rules for unfair means in examination, Scholarship, Medal and Prizes for the students. f) Senate and Convocation matters g) Reservation in admissions to UG, PG, PhD programmes
3.	**Leave/Vacation:**	a) CCS (Leave) Rules b) Type of leave and terms & conditions of its grant. c) Accumulation of Leave. d) Procedure for grant of leave.
4.	**Disciplinary Procedures**	a) CCS(Conduct) Rules b) CCS(CCA) Rules c) Procedure for disciplinary actions.
5.	Pension Rules and Retirement Benefits, Gratuity, GPF, CPF, NPS, MACP, DPC	
6.	**Purchasing**	a) Purchasing Principles GFR-2017. b) Various purchasing Systems etc. GeM Rules and Central Public Procurement Portal.
7.	TA/DA Rules, LTC Rules, Medical Rules, Joining time rules, Rules of Deputation & Lien, Reservation in appointment, Recruitment Rules in NITs for faculty and non-faculty members.	
8.	RTI Act, Various Policies of the Institute etc.	

20/2/25

21/2/25

28/02/25

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HAMIRPUR (H.P.) - 177 005 (INDIA)
[An Institute of National Importance under Ministry of Education (Shiksha Mantralaya)]
{Office of Head, Electrical Engineering Department}

Syllabus for Assistant Engineer (Electrical Engg. SG-I, Level-09)

1. Fundamentals of Electrical Engineering: Concepts of resistance, inductance, capacitance and their combinations, Circuit laws, Ohm's law, KCL, KVL, node and mesh analysis, resonance, ideal current and voltage sources, Network Theorems and Circuit solution, Star Delta transformation, DC and AC circuit Analysis, Resonance in series and parallel RLC circuits, Three phase circuits.

2. Measurement and Instrumentation: Electrical and Electronic Measurements and Measuring Instruments, PMMC, moving iron, dynamometer and induction type instruments, Extension of range, measurement of voltage, current, power, energy and power factor, Bridges and potentiometers, instrument transformers, phase and frequency measurement, Q-meters, Megger, AC and DC Bridges, oscilloscopes, Measurements of active and reactive power, Energy-meter, wattmeter and power factor meter, different transducers for electrical and non-electrical quantities, operational amplifiers, microprocessors and microcontrollers with applications.

3. Electrical Power System Generation, Transmission and Distribution: Power generation concepts and schematic of Hydro, Thermal, Nuclear power plants, Diesel, Gas, Pumped storage power plants, renewable energy sources, transmission line models and performance, cable performance, insulation, corona and radio interference, different power distribution systems, symmetrical components, principles of over-current, differential and distance protection, Generator, feeder, transformer and bus-bar protection, Lightning protection, solid state relays and circuit breakers, Sub-Station Practices, Tariffs, Neutral grounding.

4. Fundamentals of Electrical Machines and Drives: Single phase transformer – equivalent circuit, phasor diagram, tests, regulation and efficiency, three phase transformer connections, parallel operation, auto-transformer, DC machines–types, windings, generator characteristics, armature reaction and commutation, starting and speed control of motors, Three phase induction motors–principles, types, performance characteristics, starting and speed control, single phase induction motors, synchronous machines-performance, regulation and parallel operation of generators, motor starting, characteristics and applications, basic concepts of electric drives, adjustable speed dc and ac drives.

5. Basics of Control Systems: LTI systems, response of LTI systems using convolution, Fourier series and Fourier transform based analysis, concept of system and its control, basic control system components, actuators, sensors, block diagram and signal flow graph description, reduction of block diagrams, transfer function based model representation using Laplace transform, open loop and closed loop (feedback) systems, time domain analysis of control systems, stability analysis of control systems using different methods.

6. Electrical Estimation and Costing: Three phase four wire distribution system, Protection of Electric Installation against over load, short circuit and Earth fault, Earthing, Indian Electricity rules, Types of loads and wiring, Service connections, Service Mains, Sub-Circuits, Location of Outlets, Control Switches, Main Board and Distribution Board, guidelines for Installation of Fittings, Load Assessment, Permissible voltage drops and sizes of wires, estimating and costing of Electrical installations, Introduction and Types of substations and the details of its equipment.

7. Industrial Electronics: Intrinsic and extrinsic semiconductor, mobility, conductivity, Hall effect, Diode, its V-I characteristics, diode resistance, capacitance, Zener Diodes breakdown mechanism (Zener and avalanche), Diode Applications: Parallel and Series Diode Configuration, Half and Full Wave rectification, Clippers, Clampers, Zener diode as shunt regulator, Voltage-Multiplier Circuits. Light-Emitting Diodes, Transistors and their characteristics, Thyristors and their applications, Converters and inverter circuits. UPS.

24.02.2025

Dr. B B Sharma
Member

24/2

Dr. R. K. Jarial
Member

24/2/25

Prof. R. Parti
Chairman

(5)

National Institute of Technology Hamirpur (HP) 177005

Syllabus

Technical Assistant SG-I (GP-5400/Level-9)

Mechanical/Central Workshop

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1. Knowledge about workshop tools for various shops.
2. Knowledge about various machines, tools and materials used in different shops.
3. Knowledge about fixtures used in different shops.
4. Knowledge about coolants/fluids used in different machining operations.
5. Knowledge about fixing and mounting of jobs in various machines
6. Knowledge about power operated hand tools.
7. Knowledge about non-conventional machining methods and machines.
8. Welding Type of welding (Arc welding & gas welding), TIG & MiG welding, Brazing and soldering, welding defects, maintenance of tools and machines
9. Turning Basic principle of turning, description and specification of lathe machine, operations on lathe e.g. turning, taper turning, knurling, thread cutting etc.
10. Machining Metal cutting principles, cutting tools, basic principles of machining with milling and drilling, shaping machine, grinding machine etc.
11. CNC Operation Components and function of CNC operation, handling of CNC machines.
12. Metrology and Inspection, Linear and Angular Measurement, Measurement of Surface Finish, Measurements of Screw threads and Gauges.
13. SI engine, CI engine, pollution measurement and lab experiments related to them.
14. Knowledge of Kinematics/Dynamics of machines and lab experiments related to them.
15. Measurement techniques, Metrology and related lab experiments.

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(Prof. Rakesh Sehgal)

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HAMIRPUR (H.P.) - 177 005 (INDIA)
[An Institute of National Importance under Ministry of Education (Shiksha Mantralaya)]
{Office of Head, Electrical Engineering Department}

Syllabus for Technical Assistant (TA: Electrical Engg., Level-06)

1. **Fundamentals of Electrical Engineering:** Introduction to electrical circuit elements and their combinations, Circuit laws, Ohm's law, KCL, KVL, node and mesh analysis, network theorems, Simple circuit solution using different network theorems, Star Delta transformation, DC and AC circuit Analysis, Resonance in series and parallel RLC circuits, Three phase circuits, Wiring diagrams, Estimation of costing of Electrical items, Basic Electronics circuit elements, introduction to various electronic devices, diodes, transistors and their characteristics.

2. Electrical Measurement and Instrumentation: Basics of Measurement and Measuring Instruments, PMMC, moving iron, dynamometer and induction type instruments, Extension of range, measurement of voltage, current, power, energy and power factor, Bridges and potentiometers, instrument transformers, digital voltmeters and multi-meters, phase, time and frequency measurement, Megger, AC and DC Bridges, oscilloscopes, Measurements energy and power, Energy-meter, wattmeter, Transducers, different transducers, measurement of displacement, flow, pressure and temperature, operational amplifiers, microprocessors and microcontrollers with applications.

3. Fundamentals of Power System: Basic elements of a power system, Basic power generation concepts, schematic arrangement and choice of site for Hydro, Thermal, Nuclear power plants, Renewable energy sources, transmission line models and performance, insulation, corona and radio interference, different power distribution systems, power factor correction, principles of over-current, differential and distance protection, Generator, feeder, transformer and bus-bar protection, Lightning protection, relays and circuit breakers, Sub-Station Practices.

4. Electrical Machines and Drives: Basics of electrical machines and drives , Single phase transformer – equivalent circuit, phasor diagram, tests, regulation and efficiency, three phase transformer connections, parallel operation, auto-transformer, DC machines, generator characteristics, starting and speed control of motors, three phase induction motors– principles, types, starting and speed control, single phase induction motors, synchronous machines – performance, regulation and parallel operation of generators, motor starting, characteristics and applications, power electronics devices and drives, semiconductor devices, phase control rectifiers, Choppers and Inverters, dc and ac drives.

5. Control Engineering: Concept of control systems, basic control system components, block diagram and signal flow graph description, transfer function based models, time and frequency domain analysis of control systems, concept of stability compensators and controllers, PI, PD and PID controller.

24.02.2025.
Dr. B B Sharma
Member

24/2/25
Dr. R. K. Jarial
Member

24/2/25
Prof.. R. Parti
Chairman

National Institute of Technology Hamirpur

Department of Architecture

Syllabus of Technician (SG-II)

Architectural Design

Introduction to Architectural Design, Different Types of Area and their role (i.e. F.A.R/F.S.I., carpet area, floor area, plinth area, built-up area), basics of colors - primary colours and secondary colours

Building construction and Materials

Introduction to building materials like timber, brick, stone, cement, cement concrete, Elements of buildings-roof, floor, walls, foundation, door and window, Arches and Lintels, Staircase

Computer Skills

Introduction to AutoCAD-Basic 2-D drawing tools and commands, Printing output, Basic knowledge of Microsoft word

Estimation, Costing and Specifications

Introduction and types of building estimates, introduction to general specifications in residential buildings, principles of valuation

Workshop

Types of brick bonds and carpentry joints

History of Architecture

Indian architectural history-Indus valley civilization, Buddhist architecture and Mughal Architecture.

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National Institute of Technology Hamirpur (HP) 177005

Syllabus

Technicians SG-II (GP-2800/Level-5)

Mechanical/Central Workshop

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1. Knowledge about workshop tools for various shops.
2. Knowledge about various machines, tools and materials used in different shops.
3. Knowledge about fixtures used in different shops.
4. Knowledge about coolants/fluids used in different machining operations.
5. Knowledge about fixing and mounting of jobs in various machines
6. Knowledge about power operated hand tools.
7. Knowledge about non-conventional machining methods and machines.
8. Welding Type of welding (Arc welding & gas welding), TIG & MiG welding, Brazing and soldering, welding defects, maintenance of tools and machines
9. Turning Basic principle of turning, description and specification of lathe machine, operations on lathe e.g. turning, taper turning, knurling, thread cutting etc.
10. Machining Metal cutting principles, cutting tools, basic principles of machining with milling and drilling, shaping machine, grinding machine etc.
11. CNC Operation Components and function of CNC operation, handling of CNC machines.
12. Metrology and Inspection, Linear and Angular Measurement, Measurement of Surface Finish, Measurements of Screw threads and Gauges.

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(Prof. Rakesh Sehgal)

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Syllabus for Technician (SG-II)
Department of Civil Engineering
National Institute of Technology Hamirpur

Building Materials: Aggregates (Fine & Coarse): Grain size distribution, specific gravity, density, bulking, crushing value, impact value, and water absorption. Cement: Fineness, standard consistency, initial and final setting time, compressive strength, specific gravity, and soundness. Concrete: Workability tests (slump test, compaction factor test, Vee Bee test), cube and cylinder strength. Bricks & Stones: Compressive strength, water absorption, efflorescence, dimensional tolerance, and warpage in burnt clay bricks.

Transportation Engineering: Strength test: impact and crushing tests; Shape test; Hardness test: Abrasion test; grain size analysis of aggregates; Aggregate specific gravity and Aggregate water absorption; Consistency test; Softening tests; Ductility test; Bitumen content in a bituminous mix; Compaction tests of soil; Determination of CBR; Traffic survey on a road stretch.

Water Resources Engineering: Metacentric Height, Bernoulli's Theorem, Venturimeter, Orifice meter, Pitot Tube, Notches, Mouthpiece, Friction of pipes, Losses in Pipes, Free Vortex Flow, Forced Vortex Flow, Rotatmeter, Darcy's Law

Surveying: practical exercises on elevation determination between two points, profile leveling, and cross-sectioning of given routes. Measuring horizontal angles using reiteration and repetition methods, theodolite traversing, and error adjustment. Contour maps using radial lines and practice plane tabling through radiation and intersection methods. Total stations for topographic surveys. Curve setting techniques include offsets from the long chord, successive bisection. GPS/DGPS basic settings and survey applications are included for geospatial data collection and mapping.

Soil Mechanics: This course teaches basic soil tests used in construction. It includes checking soil type, water content, and particle size. Simple tests like compaction, permeability, shear, and soil strength are covered. Field tests like core cutter and sand replacement methods are also included.

Environmental Engineering: pH, solids (total, settleable, volatile), DO, BOD, COD, Chloride, Hardness, nitrogen forms (total, nitrite, nitrate), coliform bacteria (MPN), and metals/metalloids.

27-02-2025

27/2/25

28/02/2025

National Institute of Technology Hamirpur (HP) 177005

Syllabus

Senior Technicians (GP-2400/Level-4)

Vehicle/Transport

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1. Knowledge of Road Signs.
2. Knowledge about Manual/ Automatic Vehicles.
3. Knowledge about Lubricants for Engine and Gear-box.
4. Knowledge about Batteries of Automobiles.
5. Knowledge about Braking and Ignition system.
6. Knowledge service and Maintenance of Automobiles.
7. Knowledge Suspension and cooling system of Automobiles.
8. Knowledge about exhaust system of Automobiles.
9. Knowledge about Electric Vehicles.

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(Prof. Rakesh Sehgal)