# Department of Higher Education, Haryana

## (Directorate of Technical Education, Haryana)

# Admission Brochure

**for**

**for Admission to 2nd Year (3rd Semester)**
**B.E./B.Tech. (Lateral Entry) for the Session 2025-26 in**

**The University Departments, Govt. / Private Self Financing institution located in State of Haryana**



## Issued by

**Haryana State Technical Education Society**
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## CHAPTER 4

## SCHEME SYLLABUS AND PROCEDURE FOR ONLINE ENTRANCE TEST FOR B.E./B.TECH. (LEET) – 2025

There will be a Common Online Entrance Test for students of all streams of Engineering/ Technology Diploma holders seeking admission to 2nd year (3rd Semester) of B.E./ B.Tech. Course under Lateral Entry Scheme. The Test would have 90 objective types multiple choice of questions. Each question will carry one mark. Separate rank-wise merit list for the above test will be prepared and the admission will be made on the basis of inter-se rank obtained in the said Entrance Test and as per the choice of Branch / Institution filled by the candidate at the time of locking of Choices (counseling). For example, a candidate having diploma in Mech. Engineering or in any other branch of Engineering or Technology can take admission in Computer Engineering and vice-versa, depending upon his / her rank, choice and availability of seats at the time of his / her admission.

### 4.1 Scheme and Syllabus

**Note: The syllabus for B.Tech. (Lateral Entry) Entrance Examination -2025 is in alignment with the Diploma Curriculum prescribed by AICTE/HSBTE. However, the same is not restricted solely to the prescribed curriculum and may require exhaustive study of important topics.**

### 4.1 (A) Scheme of Entrance Test for B.E./B.Tech. (LEET) – 2025

(i) Maximum Marks : 90

(ii) There will be one Question Paper of 90 miutues duration in following parts:-

Section: 'a'
Questions: 1 to 25
Subject: Basic Sciences
Maximum Marks: 25

| Name of Section | Name of Subjects | No. of Questions | Maximum Marks |
|---|---|---|---|
| a-1 | Mathematics | 8 | 8 |
| a-2 | Physics | 8 | 8 |
| a-3 | Chemistry | 3 | 3 |
| a-4 | Communication Skills | 3 | 3 |
| a-5 | General Awareness | 3 | 3 |

Section : b

Questions: 26 to 50

Subject: Electronics Stream Courses

Maximum Marks: 25

| Name of Section | Name of Subjects | No. of Questions | Maximum Marks |
|---|---|---|---|
| b-1 | Elements of Electrical Engg. | 9 | 9 |
| b-2 | Elements of Electronics Engg. | 8 | 8 |
| b-3 | Elements of Computer Engg. | 8 | 8 |

Section : c

Questions: 51 to 70

Subject: Mechanical Stream Courses

Maximum Marks: 20

| Name of Section | Name of Subjects | No. of Questions | Maximum Marks |
|---|---|---|---|
| c-1 | Elements of Mechanical Engg. | 8 | 8 |
| c-2 | Elements of Production Engg./Manufacturing Processes | 6 | 6 |
| c-3 | Auto Engg. | 6 | 6 |

Section : d

Questions: 71 to 90

Subject: Other Engineering Streams

Maximum Marks: 20

| Name of Section | Name of Subjects | No. of Questions | Maximum Marks |
|---|---|---|---|
| d-1 | Civil Engg. Courses | 5 | 5 |
| d-2 | Textile Engg. Courses | 5 | 5 |
| d-3 | Chemical/Printing Technology | 2 | 2 |
| d-4 | Ceramic Engg. | 2 | 2 |
| d-5 | Food Technology | 2 | 2 |
| d-6 | Others | 4 | 4 |

Note:

i. Only objective type multiple-choice questions in English with four answers having only one correct answer will be asked in the Entrance Test.

ii. There will be “No” Negative Marking.

## 4.1 (B) SYLLABUS OF ENTRANCE TEST FOR B.E./B.Tech (LEET)-2025

### (a-1) MATHEMATICS

Arithmetic Progressions, Complex Numbers, Logarithm, Permutation and Combination, Binomial expansion, Probability, Matrices, Trigonometry, Straight Line, Circle, Differentiation of a function. Successive differentiation. Maxima and Minima, Definite and indefinite Integration, application of integration. First order and first degree ordinary differential equations. Mean, mode, median, mean deviation and standard deviation.

### (a-2) PHYSICS

- Units and Dimensions with Dimensional analysis and their Limitations.
- Motion in one dimension and Newton's Laws of Motion.
- Work and Energy and Conservation Laws of Energy.
- Properties of matter i.e. Elasticity, surface tension and viscosity in fluid motion.
- Waves and vibration, Characteristics of waves and simple Harmonic motion.
- Rotational motion, Conservation of angular momentum.
- Heat and temperature, measurement of temperature and mode of transfer of heat and their laws.
- Geometric optics and simple optical instruments.
- Simple laws of electrostatics and their use to find the E and Potential, Capacitors and dielectric constant.
- Laser, its principle and use, superconductivity, Conventional and non-conventional energy sources.

### *(a-3)* CHEMISTRY

Hard and soft water, types of hardness, disadvantages of hardness of water, its causes and its remedies. Brief introduction of the terms:

- Acidity
- Basicity
- Ion Exchange Method
- Electronic Configuration upto atomic number 30
- Equivalent weight
- PH value

Definition of symbol, formula, valency & chemical equation.

**(a-4) COMMUNICATION SKILL**

Words, antonyms and synonyms, communication technique Grammatical ability

- Preposition
- Correction
- Voice
- Narration
- Punctuation
- Tenses
- correction incorrect sentences

**(a-5 ) GENERAL AWARENESS**

General awareness about Technical Education in Haryana such as:

- Name of Polytechnic, Number of Polytechnics and sanctioned intake
- Eligibility for admission to LEET
- Number of Institutions offering BE/B.Tech. & B.Pharmacy.
- Name the Processes involved in on-line off campus counseling.
- General awareness about Haryana
- No. of Districts/Tehsils/Blocks/villages
- Total population of State/Area of state/Boundary states of Haryana, History of Haryana General awareness about country, General awareness about Polytechnics

**SECTION b**

**SUBJECT ELECTRONICS STREAM COURSES**

***(b-1)* ELEMENTS OF ELECTRICAL ENGINEERING**

- Electrical and Magnetic Circuits: EMF, Kirchhoffis laws and Faraday's Laws, Network theorems.
- AC Circuits: RMS value, behavior of RLC elements, series and parallel circuits, series and parallel resonance circuits.
- Transformers: Introductions to single phase and three phase transformers
- DC Machines: Theory, constructions and operation of DC generator and motor.
- Induction Motor: Principle, construction and operation of three phase induction motors.
- Transmission and Distribution: Advantage of high voltage for transmission, comparison of 3 phase, single phase, 2 phase and three wire D.C. Systems

**(b-2) ELEMENTS OF ELECTRONICS ENG I N E E R I NG**

Measurements & Instrumentation: Errors, standards, accuracy precision resolution, Ammeters, voltmeters, wattmeters and energy meters, insulation tester, earth tester, multimeter, CRO, measurement of V, I & F on CRO low, medium & high resistance measurement, AC Bridges, Transducers for measurement of temperature, displacement, Communication System, Types of modulation, demodulation.

Analog Electronics: Semiconductor diode circuits, zener diode and zener diode circuits, LED, Photo diode, BJT, FET & their configurations and characteristics, Biasing, small signal & large signal amplifiers, OPAMPS, oscillators, regulated power supply.

Digital Electronics: Number System, conversion from one to another system, Binary arithmetic, codes conversion & parity; Logic gates; Boolean algebra, FlipFlop.

Industrial Electronics and Control: SCR, DIAC, TRIAC.

**(b-3) ELEMENTS OF COMPUTER ENGINEERING**

- Fundamentals of Computers: Organization of Digital Computers, Data Processing High Level Languages, Translators, Compilers, Interpreters, algorithms, Flow Charting Instructions.
- Computer Organization: Overview of registers, bus organized computers, instruction set, Instruction execution, Hard-wired and micro programmed control units, Processor Organization. Memory Organization: Cache and virtual memory, 1/0 organization.
- Operating Systems: Overview of Operating Systems, Basic functions, concept of process, scheduling memory management, critical section, synchronization, monitors.
- Programming in C, Steps in Program development, flowcharting algorithm, C Language: Data types, Console 1/0 program control statements, arrays , structures, unions functions, pointers, enumerated data types and type statement, File handling C standard library and header files.
- Basic of Computer networking LAN, WAN, Internet & Application.

***SECTION c***

**SUBJECT MECHANICAL STREAM COURSES**

**(c-1) ELEMENTS OF MECHANICAL ENGINEERING**

- Applied Mechanics: Friction, laws of friction, friction applications, centroid of a plane area, simple machines, screw jack, wheel & axles, system of pulleys, projectile, work, power, energy.

- Strength of materials: Stress, Strain, Hooks law, stress-strain diagram, temperature stresses, composite section, Relation between elastic constants, (E.C.G.) Resilience, Principal stresses, principal planes, B.M. & S.F. diagram for simply supported and cantilevers, beams, columns & struts.
- Thermodynamics: First law of thermodynamics, second law of thermodynamics, zeroth law, steam properties, Diesel cycle, otto cycle, thermodynamic process, Ideal cycles.
- Modes of Heat Transfer (Conduction, Convection, Radiation).
- Fluid Mechanics: Properties of fluid, Viscosity, Newtonian and Non-Newtonian fluids, Bernoulli's Theorem, Types of Fluid flows, Dimension less numbers, Measurement of fluid flow by the pilot tube, Venturimeter, Darcy equation.

### *(c-2) ELEMENTS OF PRODUCTION ENGINEERING/ MANUFACTURING PROCESSES*

Workshop Technology: Lathe- operations, turning machining Time, cutting speed, feed, Depth of cut, Drilling, Type of drilling machines, Drilling operation, Drilling time, Milling up milling down milling milling operations, milling cutters, milling time, Shaper & Planer Working Principle, Measuring Instruments and Gauges, Vernier Caliper, Micrometer, Sine Bar, Plug gauges, snap gauges, ring gauges welding Soldering Brazing.

- Material Science: Engg. Materials, Mechanical properties of materials, hardness testing methods, heat treatment, hardening annealing tempering carburzing Normalizing.
- Engineering Graphics & Drawing: First angle and third angle projection methods, orthographic views, Isometric views, conventions for lines and materials, Projections of lines and solids (only conceptual questions).
- Foundry: Pattern and their types, molds and molding materials.
- Plastic & their properties, various molding processes of plastic.
- Industrial management: types of organizational structure, qualities & responsibilities of good leader, methods of quality control, productivity.

### (c-3) AUTOMOBILE ENGINEERING

Power flow in an automobile

- Gear box & its types,
- use and types of breaks,
- types of clutches,
- basic knowledge of differential,
- cooling
- lubrication of Engine,
- types of wheels and tyres used in Automobile,
- major automobile industries. E-vehicles, hybrid vehicles.
- Steering system and angles.

***SECTION*** ***d***

**SUBJECT** **OTHER ENGG. STREAMS**

## (d-1) CIVIL ENGG. COURSES

- Introduction to brick, raw materials for bricks, manufacturing of bricks, brick work in foundation.
- Index properties of soil, seepage of soil.
- Water demand for industrial/Commercial & domestic purposes, per capita demand, various sources of water, Treatment & Disposal of sludge
- Types of foundation (Design not included), Repair & Maintenance of Buildings, Basic principles of surveying chain surveying, Bench Mark, compass surveying Basics of RCC (elementary knowledge) different grades of concrete, workability, mixing of concrete, compaction of concrete.
- Classification & suitability of various types of doors, roofs.
- Name of earth moving machinery, different types of road material, flexible & rigid pavements, classification of bridges.
- Water requirement of crops, methods of irrigations Concept/ meaning/ need/ competencies/ qualities of Entrepreneur classifications of dams & site selection for reservoir classifications of rocks.
- various types of cement & their uses
- Basis of Ecology, Pollution of water its causes & remedial near, Role of non- conventional sources of energy.

## (d-2) TEXTILE ENGG. COURSES

- Different types of fibers, Fabrics & yarn manufacturing & performance, Weaving Technology
- Textile testing & quality control
- Modern methods in yarn products
- Bleaching, Dying & Printing.

## (d-3) CHEMICAL / PRINTING ENGG.

Elementary knowledge of Fluid Flow, Chemical process industry, Agro based industries,Petro chemicals Introduction of printing machines/presses, types of printing

## (d-4) CERAMIC ENGG.

Classification of various pottery productions, ceramic material & their properties

## (d-5) FOOD TECHNOLOGY

Vitamins, cereals & Pulses milk & milk powder preservation of food process.

***(d-6) OTHERS ENGG. COURSES***

***(d-6) (i) AGRICULTURE***

Introduction to Farm equipment

***(d-6) (ii) Architecture***

History of Indian Architecture, building topologies.

***(d-6) (iii) FASHION DESIGN & FASHION TECHNOLOGY***

Knowledge of Fashion Technology, History & culture, Introduction to garment manufacturing machines & tools.