TIT LATERAL ENTRANCE EXAMINATION (TITLEE) 2025

Tripura Institute of Technology
Narsingarh
PO: Agartala Aerodrome, Narsingarh, Tripura (West)-799009

DEPARTMENT OF HIGHER EDUCATION
GOVERNMENT OF TRIPURA

INFORMATION BROCHURE

Vision of the Institution:

The vision of the Institute is to emerge as one of the best Technical Institutes of the Country in creating quality engineers and leaders through excellence in technical education for industries and for the society.

Mission of the Institution:

The mission of the institute is to:

a) impart quality technical education to develop innovative, entrepreneurial and ethical technocrats,
b) develop collaborative partnership with industries and academia,
c) provide sustainable technical solutions for the societal needs,
d) provide participative learning in a cross-cultural environment that encourages learning beyond the class room.

"RAGGING IS TOTALLY BANNED AND ANYONE FOUND GUILTY OF RAGGING AND /OR ABETTING RAGGING IS LIABLE TO BE PUNISHED."

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NARSINGAR, TRIPURA WEST, PIN-799009

INFORMATION BROCHURE

1. Introduction:

The TIT Lateral Entrance Examination (TITLEE) is conducted for admission to the Degree Programs against 25% seats kept reserved for the Diploma pass out candidates including in service candidates for lateral entry into Second Year (3rd Semester) of the Degree Program in Tripura Institute of Technology, Narsingarh who would apply through proper channel and would fulfil all the eligibility criteria as set forth for such admission. The allocation of seats against the reservation would be on the basis of the prevailing reservation policies of the State Government. Eligibility criteria and other terms & conditions as envisaged below:

2. Examination Scheme for Lateral Entry into Degree Program:

The Lateral Entrance Examination (TITLEE) would consist of one paper of **75 marks and of 01 (One) hour and 30(Thirty) minute** duration. All the questions will be multiple choice question type. For each incorrect response (answer) **¼ mark will be deducted**.. The medium of examination, i.e. setting of question papers will be only in English. Mode of Selection would be strictly on merit based as reflected in the written examination.

3. No. of Seats available:

	Branch of Degree Engineering	Seats	Remarks
1	Civil Engineering	15	In addition six(06) number of supernumerary seats in each branch and all unfilled vacancies (if any) in the 1st Year B.Tech in each branch will be allowed for admission through TITLEE 2025
2	Computer Science & Engineering	15	
3	Electrical Engineering	15	
4	Electronics & Tele Communication Engineering	15	
5	Mechanical Engineering	15	

4. Eligibility Criteria:

a) General Criteria

- There is no age limit for the candidates. In service candidates have to apply either through proper channel submitting an advance copy **or** a "No Objection Certificate" from the employer with the application. However, such candidates have to submit Release Order from their parent Department at the time of admission.
- Candidates must be a permanent resident of Tripura (attested copy of PRC / PRTC should be submitted).
- Candidates must be a Diploma pass out (Full Time Course) from **AICTE** approved Institute in ANY branch of engineering.

OR

Candidates appearing Diploma final examination in the year 2025 in ANY branch of engineering. They have to produce their Diploma Pass Certificate/Mark-sheet positively at the time of counseling, failing which their candidature for such admission will be summarily rejected.

b) Technical Criteria:

Branch of Degree Engineering	Eligibility Criteria
Mechanical Engineering.	Passed Minimum THREE years / TWO years (Lateral Entry) Diploma examination with at least 45% marks (40% marks in case of candidates belonging to reserved category) in **ANY** branch of Engineering and Technology.
Civil Engineering.	
Electronics & Communication Engineering.	
Computer Science & Engineering.	
Electrical Engineering.	

5. Submission of Application Form:

Eligible candidates may submit the application:

Through the online application form using the link available in the institute website www.titagartala.ac.in from **23rd April 2025 to 12th May 2025** after the payment of **Rs. 700/-** (Rupees Seven Hundred) only through **online payment gateway**, towards processing & examination fee.

6. Downloading of Admit Card:

Admit card will be downloaded by the candidates himself/herself and duly filled from **20th June 2025(Online)** onwards**.**

7. Tentative Date of Examination of TITLEE-2025:

Date	Time
24th June 2025 (Tuesday)	**12:30 PM – 2:00 PM**

8. Tentative Venue for Examination: Tripura Institute of Technology, Narsingarh, Tripura West.

9. Tentative Date of Publication of Result: 14th July, 2025 (Monday) at about 4:00 PM.

10. Date of Counselling: Exact date, time and venue of counselling for allotment of seat will be notified in due course of time through the Local Newspaper as well as institute website www.titagartala.ac.in

11. Address of communication:

Office of the Chairman,
TIT Lateral Entrance Examination-2025
Tripura Institute of Technology, Narsingarh.
E-mail Id: chairmantitlee@gmail.com

12. *Important Instructions for Candidates:*

a. **Other than Non-Programmable Calculator**, no electronic gadgets and watches are allowed inside the Examination Rooms / Halls.

b. During examination, candidates are instructed to fill up the **OMR Sheet carefully** by using **BLACK Ball Pen Only**. Answer script will not be considered if answered by using different ink or by pencil.

c. Without Admit card, no candidates will be allowed inside the Examination Centre.

d. Candidates must report at TIT Examination Centre by **11: 30 AM**

e. Candidates would not be allowed to leave the room till the completion of the examination **(02:00 PM).**

f. Candidates would not be allowed to enter the examination room after the commencement of the examination **(12.30 PM).**

g. **Candidates are instructed to visit the institute website www.titagartala.ac.in regularly for updates if any.**

13. Important Dates to Remember:

Sl No	Date	Day	Program
1	23.04.2025-12.05. 025	Wednesday - Monday	Form fill up, Verification etc
2	18.06.2025	Wednesday	Publication of Provisional list of candidate
3	20.06.2025	Friday	Admit card Distribution online
4	24.06.2025	Tuesday	Tentative Date of TITLEE Examination-2025/ Uploading of answer key
6	14.07.2025	Monday	Tentative Date of Result Publication

14. Syllabus of TIT Lateral Entrance Examination- 2025:

ENGINEERING MATHEMATICS

Matrix & Vector

Matrix – Definition – Order of a matrix – Leading element – Principal diagonal. Types of matrices – Null matrix – Square matrix – Identity matrix – Upper and lower triangular matrix – Symmetric matrix. – Determinant of a square matrix – Minors and cofactors – Procedures for evaluation – Properties of determinants (no deduction) – Evaluation of determinant by Chio's method (4^{th} order) – Problems. –Concept of vector – Addition and subtraction of vectors – Multiplication of a vector by a scalar – Position vector of a point – Ratio formula – Rectangular resolution of a vector – Dot and cross product – Geometrical interpretation – Distributive law – Applications.

Numerical Methods

Meaning of interpolation – Difference table – Newton's forward interpolation formula (no deduction) – roblems. – Introduction to numerical integration – Formulae for composite trapezoidal and Simpson's 1/3 rule (no deduction) – Related problems. – Numerical solution of non-linear equations – Formula for Newton-Raphson method (no deduction) – Problems. – Numerical solution of system of linear equation – Gauss-Elimination Method (no deduction) – Problems.

Differential Equations

Definition – Order and degree of a differential equation – Differential equations of 1^{st} order and 1^{st} degree – eparation of variables – Problems. – Homogeneous differential equations – Equations reducible to the homogeneous form – Problems. – Exact differential equations – equations reducible to the exact form – problems. – Linear equations – Bernoulli's equations. – Differential equations of 2^{nd} order with constant co-efficients – Complementary function and particular integral – Problems.

Partial Differentiation

Function of two or more variables – Definition and meaning of partial derivatives (1^{st} order). – Homogeneous unctions – Euler's theorem on homogeneous functions (no deduction) – Problems.

Probability and Statistics

Introduction – Random experiment – Sample space – Events. – Classical and axiomatic definition of probability. – Addition and multiplication theorem – Related problems. – Statistics – Frequency distribution. – Measure of central tendency – Mean – Median – Mode – Standard deviation – Simple problems.

ELECTRICAL TECHNOLOGY

Kirchoff's Law

Kirchoff's voltage and current laws, Star-delta transformations – Simple problems on all topics.

A. C. Fundamentals

Concept & significance of R.M.S. value, peak value, average value, crest factor and form factor of sinusoidal voltage/current – Equation of instantaneous value of sinusoidal voltage/current – Simple problems on all.

A. C. Series Circuit

R-L & R-C A.C. series circuit (no deduction, only the expressions of voltage, current & power for sinusoidal sources), power factor, power triangle – simple problems.

Storage Cell, Transformer, Motors etc.

Basic Principle of: Storage cell, D.C. motors, Transformer, A.C. generators & motors (No deduction & problems).

Magnetic Circuit

Concept on magnetic circuit, Definitions and units of magnetic flux, m.m.t. and reluctance, analogy with electrical circuit, simple problems.

Motor Starter

Need of motor starter mentioning some names useful for D.C. motors & A.C. motors.

Motors for Industrial Uses

Simple Electrical Circuit for motor installation, using block diagram of different components.

Power Generation, Transmission & Distribution

Brief idea about the power generation, transmission and distribution using block diagram of different stages.

Voltage Stabilizer & UPS System

Brief idea about the operational principle of voltage stabilizer and UPS system (no description of internal circuit)

House Wiring

Simple idea house wiring starting from commencement of supply, using necessary diagram, role of fuses / MCB, fault finding & earthing concept.

Lighting Schemes

Types of lighting scheme and factors considered for designing lighting schemes i.e. illumination level, uniformity of illumination, colour of light, glare, mounting height, spacing between luminaries, colour of surrounding walls etc.

Wattmeter & Meggar

Uses & connection diagram of Wattmeter – Use of Meggar with circuit diagram.

Electrical Energy Measurement

Electrical energy measurement (no mathematical deduction & description of apparatus) – circuit diagram for single phase energy-meter connection.

C O M P U T E R A P P L I C A T I O N S

Introduction to Computer

Brief history of Evolution of computer — Various components of Computer (brief knowledge) -Hardware – CPU, Input Output System, Primary Memory, Secondary Memory. Peripherals devices- Printers, Plotters, Scanners, Digital Cameras, Sound Cards and Speaker System, Dicta phone. Software- Operating System, System Software like compilers and Device Drivers, and various application software (application only).

Information Representation

Number System**:** Binary, Octal & Hexadecimal and conversion of number systems, Signed and unsigned representation. Binary arithmetic and compliments. Character Codes : ASCII, BCD and Gray Codes.

Basic of Software

Classification of Software Systems - System Software and application software. Basic concepts of compilers, interpreters, assemblers and device drives. Operating System – Single user, multi user, graphical user interface and characters user interfaces. Case studies: MS – DOS, Windows.

Introduction to programming

Algorithm and flowchart. Different types of programming languages – Machine level, assembly level and high level languages (basic concepts only). Brief introduction to different high level languages including C. Basic of C-language. Branching and loping statements. Array and user defined functions.

Computer networking and internet

Basic of computer Networking – LAN, MAN, WAN (definitions only). Client – Server Architecture (elementary level). Internetworking concepts of world wide web. Domain name system emails. Web browsing, use of search engines, web site hosting (elementary level).

ENVIRONMENTAL ENGINEERING

Introduction

Man & Environment**:** Overview (socio-economic structure & occupational exposures) – Scope of Environmental Engineering – pollution problem due to urbanization & industrialization.

Air Pollution

Causes of air pollution – types & sources of air pollutants – Climatic & Meteorological effect on air pollution concentration – formation of smog & fumigation.

Analysis of Air Pollutants

Collection of Gaseous Air Pollutants – Collection of Particulate Pollutants – Analysis of Air Pollutants like: Sulphur dioxide – Nitrogen oxide – Carbon monoxide – Oxidants & Ozone – Hydrocarbons – Particulate Matter

Air Pollution Control Measures & Equipment

Control of Particulate Emission – Control of Gaseous Emission – Flue Gas Treatment Methods**:** Stacks Gravitational and Inertial Separation, Settling Chambers, Dynamic Separators, Cyclones, Filtration, Liquid Scrubbing, Spray Chambers, Packed Towers, Orifice and Venturi Scrubbers, Electrostatic Precipitators, Gas/solid Adsorption, Thermal Decomposition

Methods & Approach of Air Pollution Control

Controlling smoke nuisance — Develop air quality criteria and practical emission standards — creating zones suitable for industry based on micrometeorology of air area — introducing artificial methods of removal of particulate and matters of waste before discharging to open atmosphere.

Water Sources

Origin of wastewater — Type of water pollutants and their effects

Different Sources of Water Pollution

Biological Pollution (point & non-point sources) – Chemical Pollutants: Toxic Organic & Inorganic Chemicals – Oxygen demanding substances – Physical Pollutants**:** Thermal Waste – Radioactive waste – Physiological Pollutants: Taste affecting substances – other forming substances

Water Pollution & its Control

Adverse effects on**:** Human Health & Environment, Aquatic life, Animal life, Plant life — Water Pollution Measurement Techniques – Water Pollution Control Equipments & Instruments – Indian Standards for Water Pollution Control.

Soil Polluting Agencies & Effect of Solution

Liquid & Solid Wastes – Domestic & Industrial Wastes – Pesticides – Toxic**:** Inorganic & Organic Pollutants – Soil Deterioration – Poor Fertility, Septicity, Ground Water Pollution, Concentration of Infecting Agents in Soil.

Solid Waste Disposal

Dumping domestic & Industrial Solid Wastes: Advantages & Disadvantages – Incineration: Advantages & Disadvantages – Sanitary Land Field: Advantages & Disadvantages – Management of Careful & Sanitary Disposal of Solid Wastes

Noise Pollution & Control

Noise Pollution: Intensity, Duration – Types of Industrial Noise – Ill effects of Noise – Noise Measuring & Control – Permissible Noise Limits

Environmental Legislations, Authorities & Systems

Air & Water Pollution Control Acts & Rules (Salient Features only) – Functions of State / Central Pollution Control Boards – Environmental Management System: ISO 14 000 (Salient Features only)

E N G I N EE R I N G M E C H A N I C S

Introduction

Concept of Engineering Mechanics — Statics & Dynamics — Scalar Quality — Vector Quality — Addition & Subtraction of Vectors — Basic units — Derived Units — SI units — principles of dimensional homogeneity.

System of Forces

Definition of a force with explanation — Linear representation of force — System of co-planar forces — Parallelogram Law of Forces — Composition and Resolution — Transmissibility of forces — Action and Reaction — Triangle Law & Polygon Law of forces — Determination of Resultant by Analytical and graphical method with equalitarian space diagram — Vector diagram..

Moments & Couples

Definition of moment of a force about a point — Physical significance of moment — Moment of a system of parallel and inclined forces — Varignon's Theorem — Definition of moment of a couple — Physical significance of Couples Equivalent couples — Resultant of any number of coplanar couples — Replacement of a force about a point by an equal like parallel force together with a couple — properties of couples.

Condition of Equilibrium

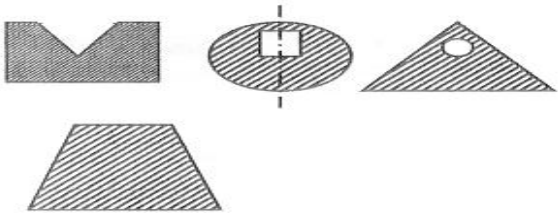
Lami's Theorem — Triangle Law & Polygon Law of equilibrium — Conditions of equilibrium of co-planer system of concurrent forces — Conditions of equilibrium of co-planar system of non-concurrent parallel forces (like & unlike) — Conditions of equilibrium of co-planar system of non-concurrent non-parallel forces (simple problems excluding statically indeterminant).

Friction

Definition — Useful and harmful effects of friction — Laws of Static friction — Co-efficient of friction — Angle of friction — Angle of repose — Equilibrium of a body on a rough inclined surface with and without external force.

Centre of Gravity

Concept & definition — Centre of mass — Centroid - Methods of finding out centroids of simple area by**:**
(i) Geometrical consideration, (ii) Method of Moments. [** Method of integration should be learnt in strength of materials on 2nd Semester] — Finding the centroid of the following areas by any method:
(i) uniform triangular lamina, (ii) uniform rectangular lamina, (iii) uniform circular lamina. — Finding the centriod of the following sections using the method of moment**:**
(i) T-section, (ii) equal and unequal angle-sections, (iii) equal and unequal I-sections, (iv) different cut-out sections as shown in the following figures.



Moment of Inertia

Introduction — definition and unit — M I of a lamina — Theorems of finding out M I by**:**
(i) Parallel axis theorem, and, (ii) Perpendicular axis theorem. — Radius of Gyration — Finding out M I of the following sections using formula only**:**
(i) Rectangular section, (ii) Square section, (iii) Circular section, (iv) Triangular section. — M I of irregular areas such as I-sections, T-sections, — Related simple problems. — Polar M I.

Simple Machines

Definition of Machine — Difference between Machine & Lever — Mechanical Advantage, Velocity Ratio and Efficiency with their relationship — Frictional Effort Load — Condition of reversibility / irreversibility — Law of Lifting Machines – Maximum mechanical advantage – Maximum efficiency — Effort vs. load curve — Efficiency vs. load curve — Different types of lifting machine with their mechanical advantage, velocity ratio & efficiency such as wheel and axle (simple & differential), Crab winch (single & double purchase), Weston pulley block, worm & worm wheel, simple screw jack.

Rectilinear Motion

Motion equations (with deduction S= V x t: $V = u \pm f t$; $S = u.t \pm ½ f t^2$; $V^2 = U^2 \pm 2 f S$) - Newton's Second Law of linear motion p = mf (deduction) — Conservation of momentum of a body — No Numerical problems.

Curvilinear Motion

Angular displacement — Angular speed — Angular velocity — Relation between angular speed & angular velocity — Angular acceleration — Relation between linear & angular velocity — Relation between linear & angular acceleration — Centripetal and centrifugal force (numerical problems)

Work Power Energy

Definition, Units, potential Energy (mgh); Kinetic Energy ($1/2\ m\ v^2$), Laws of conservation of energy. — Change of Kinetic energy = work done by acting force. Simple numerical problems

S T R E N G T H O F M A T E R I A L S

Simple Stresses & Strains

Scope of subjects. Use of structure, importance of knowledge of stress, strain and deformation in structure, safety and economy. Engineering materials : definitions and examples — Mechanical properties of engineering materials: Elasticity, Plasticity, Ductility, Hardness, Fatigue, Creep Brittleness (definition, examples and applications). — Stress and Strain: Tensile, Compressive , Shear — Stress-strain diagram: Principles of tensile testing in universal testing machines showing salient points such as elastic limit, proportional limit, yield points, breaking points etc., ultimate stress, working stress and factor of safety. — Stress - strain relations: Hooke's law, Young's Modulus, Modulus of rigidity. Poisson's ratio.

Shear Force & Bending Moment

Definition and Types of beams, supports and loads. — Shear force and bending moment in beams: Definitions, sign conversions and inter-relationships — Shear force and bending moment diagrams (with simple problems): (i) Cantilever beams with point loads and Uniformly Distributed Loads (UDL). (ii) Simply supported beams with point loads and UDL. (iii) Simply supported overhanging beam with point load.

Bending Stresses in Beams

Pure bending of beam: Assumptions, deduction of bending equation with usual notations, moment of resistance, section modulus. — Problems on bending stress about axis parallel to the plane of bending: for rectangular circular & I-section

Deflection of Beams

Differential equation of elastic curve — Relation among deflection, slope, shear force, bending moment and rate of loading — Sign convention of slope and deflection.

Standard formula (no proof, only simple problems) for maximum slope of deflection of**:** —

Cantilever beam subjected to point load at free end, uniformly distributed load on entire span;

Simply supported beam carrying a point load at mid span, uniformly distributed load on entire span.

Columns & Struts

Definitions of Columns & Struts — Long, Medium & Short columns – Effective Length – Slenderness Ratio – Critical load – Safe load — Different kinds of end conditions — Euler's formula for critical load (no deduction and no problem).

END

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