

Institute of Engineering (IOE)

Tribhuvan University — BE / B.Arch Entrance Examination

OFFICIAL EXAM FORMAT & SYLLABUS 2083

1. Examination Format

Exam	IOE Entrance (Computer-Based Test — CBT)
Duration	2 hours (120 minutes)
Total Questions	100 MCQs
Total Marks	100 (1 mark per question)
Negative Marking	-0.1 per wrong answer (10% of 1-mark question)
Mode	Computer-Based Test (CBT) since 2077
Language	English & Nepali
Result	Published ~2 weeks after exam

2. Subject-wise Weightage

Mathematics	40 questions — 40 marks
Physics	30 questions — 30 marks
Chemistry	30 questions — 30 marks
Total	100 questions — 100 marks

3. Detailed Syllabus by Subject

3.1 Mathematics (40 Questions)

- Algebra: Sets, quadratic equations, sequences & series (AP/GP), logarithms, binomial theorem, matrices & determinants, complex numbers
- Trigonometry: Identities, compound & multiple angles, inverse functions, solutions of triangles, heights & distances
- Analytic Geometry: Straight lines, circles, parabolas, ellipses, hyperbolas
- Calculus: Limits & continuity, differentiation, application of derivatives, integration, definite integrals, area under curves
- Vectors & Statistics: Dot/cross products, mean/median/mode, variance, probability basics
- Coordinate Geometry: Distance, section formula, slope, pair of lines

3.2 Physics (30 Questions)

- Mechanics: Kinematics, Newton's laws, work-energy-power, rotation, gravitation, SHM

- Heat & Thermodynamics: Temperature, calorimetry, kinetic theory, laws of thermodynamics
- Waves & Optics: Wave motion, sound, interference, reflection & refraction, lenses & mirrors
- Electricity & Magnetism: Electrostatics, current electricity, magnetic effects, EMI, AC circuits
- Modern Physics: Photoelectric effect, atomic models, nuclear physics, semiconductors

3.3 Chemistry (30 Questions)

- Physical Chemistry: Mole concept, atomic structure, chemical bonding, states of matter, thermodynamics, equilibrium, electrochemistry, kinetics
- Inorganic Chemistry: Periodic table trends, s/p-block elements, coordination compounds, metallurgy
- Organic Chemistry: Hydrocarbons, functional groups, isomerism, polymers, biomolecules, practical organic analysis

4. Eligibility & Application

Academic Requirement	45%+ aggregate in +2 (PCM), minimum C grade in each
GPA Requirement	Minimum 2.0 GPA in +2
Application Fee	Rs. 2,500
Application Portal	entrance.ioe.edu.np
Registration Window	Opens ~Chaitra (April), exam ~Bhadra (August)

5. Merit & Tie-breaking Rules

- Merit list by total score, ranked descending
- Tie-break order: (1) Mathematics score, (2) Chemistry score, (3) fewer wrong attempts, (4) age (older preferred)
- Counselling: multiple rounds after result; seat allocation by rank preference
- Cutoff reference 2082 (Regular): Pulchowk Computer ~Rank 1-2, Civil ~1-2, EC ~2, Electrical ~7, Mechanical ~15

6. Important Dates (2083 Cycle)

Registration opens	2083 Chaitra (~April 2026)
Registration closes	2083 Chaitra end
Exam date	From 2083 Bhadra 11 (~August 2026)
Result	~2 weeks after exam
Counselling	Starts ~2 weeks after result