

Doctor of Philosophy & Master of Science Programmes in Physics (International Programmes)



Department of Physics

Faculty of Science, Mahidol University

Admission Requirements

M.Sc. Programme

- * Bachelors degree in Physics, Mathematics, or similar field, with a GPA of at least 2.50.
- * TOEFL score of at least 500 (computer based 173) or IELTS score of 5.5 or pass the English Proficiency Examination arranged by the Faculty of Graduate Studies.

In exceptional cases the first requirement may be relaxed. Candidates who have not yet attained a sufficient level in English can be admitted, but the second requirement must be met before the degree can be awarded.

Ph.D. Programme

- * Bachelor's degree in Physics, Chemistry, Mathematics or related fields with a minimum GPA of 3.5 or have a Master's degree in Physics, Chemistry, Mathematics, Geology, General Science, Engineering or related fields with a minimum GPA of 3.5.
- * TOEFL score of at least 500 (computer based 173) or IELTS score of 5.5.

Exemptions from the above conditions may be made by the Programme Committee and the Dean of the Faculty of Graduate Studies.

Scholarships
are available for outstanding students.

Admission Procedure

Applications can be made by post, by internet, or in person. The examination process will consist of:

- * Entrance examinations on General Physics, Mathematics, and English.
- * An interview for candidates who are successful in the examinations.



Topics in Entrance Examination Graduate Programs, Department of Physics

Classical Mechanics

Newtonian mechanics, universal gravitation, general theory of relativity, variational principle and Lagrange's equation of motion, Hamilton's equation of motion, Hamilton-Jacobi theory and small oscillations

Quantum Mechanics

Old quantum mechanics, Bohr-Sommerfeld quantization rules, Schrodinger picture, Heisenberg picture, Feynman's path integral, approximation methods, quantum scattering

Thermodynamics and Statistical Physics

The laws of thermodynamics, Maxwell's relations, transport phenomena, classical statistical mechanics, quantum statistical mechanics, density matrix, Fermi systems, Bose systems, critical phenomena, renormalization group

Mathematical Methods for Physicists

Functions of a complex variable, conformal mapping, calculus of residues, tensor analysis, partial differential equations, non-homogeneous equations with Green's function method, special functions, integrals transform and calculus of variation

Classical Electrodynamics

Structure of Maxwell's equations, special theory of relativity, boundary valued problems and Green's function, wave solution in various coordinate systems, introduction to material polarization of matters, wave propagation in anisotropic medium, analytic properties of permittivity and permeability, absorption and emission of electromagnetic radiation in matter, scattering theory