Physics

Course List

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PHY 5430	Solid State Theory	3
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PHY5510	Topics in Theoretical Physics (Advanced Statistical Mechanics)	3
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PHY 5530	Topics in Theoretical Physics (Introduction to Particle Physics)	3
PHY 5540	Topics in Theoretical Physics (Advanced Computational Physics)	3
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PHY 5560	Topics in the Frontiers of Physics	3
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PHY 5620	Topics in Experimental Physics (Thin Film Physics and Technology)	3
PHY 5630, 5640, 5650	Topics in Experimental Physics	3 each

Course Description

PHY 0211
Physics Problems I
1 U; 1 STOT; 1st term
Tutorial problems primarily related to PHY 2001.

PHY 0222
Physics Problems II
1 U; 1 STOT; 2nd term
Tutorial problems primarily related to PHY 2002 and 2003.

PHY 0411
Seminar
1 U; 1 STOT; 1st term
Small group discussions on topics in modern or contemporary physics. Students are advised to take PHY 3041, 3052 and 3202 before taking this course.

PHY 2001
Introduction to Mechanics
4 U; 4 Lect. 1 Tut.; 1st term
Particle kinematics and dynamics. Systems of particles and collisions. Oscillations. Newton's law of gravitation. Fluid statics and dynamics. Wave motion.

PHY 2002
Introduction to Thermodynamics and Optics
4 U; 4 Lect. 1 Tut.; 2nd term
Temperature. Kinetic theory and ideal gas. Statistical mechanics. First law of thermodynamics. Second law of thermodynamics. Combined first and second laws. Nature of light. Reflection and refraction at plane interfaces. Spherical mirrors and lenses. Interference. Diffraction. Gratings and spectra.

PHY 2003
Introduction to Electricity and Magnetism
4 U; 4 Lect. 1 Tut.; 2nd term
Electrostatics and magnetostatics in free space, conductors, electric current and DC circuits, electromagnetic induction and AC circuits, Maxwell's equations (integral and differential forms).

PHY 2004
Quantitative Methods for Basic Physics
3 U; 3 Lect. 1 Tut.; 1st term
Vectors, rates of change and kinematics. Methods for solving ordinary differential equations in mechanics and electric circuits. Line integral and multiple integrals in mechanics. Partial differentiation and its applications in mechanics and thermodynamics. Methods of vector calculus used in electromagnetism. Applications of series and systems of linear equations in physics. (Not for students who have taken MAT 2370 or PHY 2601.)

PHY 2351
Basic Computational Physics
3 U; 2 Lect. 1 Tut. 3 Lab.; 1st term
Basic computer concepts. Programming languages and scientific applications. Algorithms. Optimization techniques. Computational laboratories for practice, demonstration and illustration of the subject matter.

PHY 2400
Topics in Contemporary Physics
3 U; 3 Lect.; 2nd term
Topics of contemporary interest will be selected both from fundamental physics (e.g., black holes, pulsars) and from physics with important applications to technology (e.g., laser, superconductivity). Each will be treated qualitatively and phenomenologically. The objectives are to introduce students to the frontiers of physics, and at the same time to develop skills in heuristic understanding and explanation. Students taking this course are expected to have knowledge in Physics at the level of PHY 2001. Prerequisite: permission of the instructor.

PHY 2601
Methods in Theoretical Physics I
3 U; 3 Lect. 1 Tut.; 1st term
This course provides a survey of various analytical techniques commonly used to solve problems in theoretical physics. The following physical problems are used as examples: the vibrating string, waves, electrostatics, heat conduction and coupled oscillators. Students are advised to take PHY 2001, 2002, and 2003, or their equivalents before taking this course. Prerequisite: permission of the instructor.

PHY 2811
Physics Laboratory I
1 U; 3 Lab.; 1st term
Laboratory experiments to illustrate the principles taught in the courses at the 2000-level.

PHY 2822
Physics Laboratory II
1 U; 3 Lab.; 2nd term
Laboratory experiments to illustrate the principles taught in the courses at the 2000-level.

PHY 3011
Mechanics
3 U; 3 Lect. 1 Tut.; 1st term
Lagrangian and Hamiltonian mechanics. Central force motion. Motion of a system of particles. Coupled oscillations. Elementary dynamics of rigid bodies. Moving coordinate systems. Students are advised to take PHY 2001 before taking this course. Prerequisite: permission of the instructor.

PHY3022
Intermediate Mechanics
3 U; 3 Lect. 1 Tut.; 2nd term
Special relativity. Mechanical waves. Fluids. Nonlinear mechanical systems. Students are advised to take PHY 3011 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 3041
Electricity and Magnetism
3 U; 3 Lect. 1 Tut.; 1st term
Electrostatics. Magnetostatics. Multipoles and fields in matter. Boundary value problems. Electrodynamics. Maxwell's equations and electromagnetic waves. Students are advised to take PHY 2003 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 3052
Thermal Physics
3 U; 3 Lect. 1 Tut.; 2nd term
The laws of thermodynamics. Thermodynamic potentials. Thermodynamics of single-component systems and multi-component systems. Phase equilibria. Phase transitions and critical phenomena. Students are advised to take PHY 2002 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 3201
Quantum Physics I
4 U; 4 Lect. 1 Tut.; 1st term
Wave-particle duality. Atomic structure and Bohr's model. Basic quantum mechanics. Quantum theory of hydrogen atom. Many-electron atoms. Atomic spectra. Students are advised to take PHY 2001, 2002, and 2003, or their equivalents before taking this course. Prerequisite: permission of the instructor.

PHY 3202
Quantum Physics II
4 U; 4 Lect. 1 Tut.; 2nd term
Atomic nucleus. Nuclear forces and models. Radioactivity and nuclear reactions. Elementary particles. Chemical bonds and molecular structure. Molecular spectra. Bonding in solids. Crystal structure. Band theory of solids. Superconductivity. Students are advised to take PHY 3201 before taking this course, and are also recommended to take PHY 3052 concurrently. Prerequisite: permission of the instructor.

PHY 3320
Electronic Circuits in Experimental Physics
3 U; 3 Lect. 1 Tut.; 1st term
This course provides a survey of various electronic circuits commonly used in experimental physics, with Laboratory experiments for illustration of the subject matter. Topics include circuit analysis, diode circuits, transistor circuits, feedback theory, op-amp circuits, power circuits and logic circuits. Laboratory demonstration. Students are advised to take PHY 2003 before taking this course. Prerequisite: permission of the instructor.

PHY 3350
Introduction to Computer Simulations of Physical Systems
3 U; 2 Lect. 1 Tut. 3 Lab.; 2nd term
A project-oriented course on computer simulation, emphasizing on the setting up of physical models, the development of algorithms for the models, data analysis and graphical techniques. Topics include the cooling problem, single and many particle dynamics, chaotic dynamics, wave phenomena, and electrostatic problems. Computational laboratories for practice, demonstration and illustration of the subject matter. Students are advised to take PHY 3011 and 3041, or their equivalents before taking this course, and are also recommended to take PHY 3052 concurrently. Prerequisite: PHY 2351 or permission of the instructor.

PHY 3811
Physics Laboratory III
1 U; 3 Lab.; 1st term
Several Laboratory experiments and one project to illustrate the principles taught in the courses at the 3000-level.

PHY 3822
Physics Laboratory IV
1 U; 3 Lab.; 2nd term
Several Laboratory experiments and one project to illustrate the principles taught in the courses at the 3000-level.

PHY 4211
Electromagnetic Theory and Optics
3 U; 3 Lect. 1 Tut.; 2nd term
This is an advanced undergraduate course on the theory of electromagnetism and optics, based on Maxwell's equations. Topics covered include: field energy and momentum, wave equations, macroscopic field equations and boundary conditions, electromagnetic waves in media, reflection and transmission, absorption and dispersion, radiation from accelerated charges and simple applications, Huygen's principle, and interference and diffraction. Student are advised to take PHY 3041 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 4221
Quantum Mechanics I
3 U; 3 Lect. 1 Tut.; 1st term
This course provides an exposition of the central concepts and the theoretical framework of non-relastivistic quantum mechanics. Topics covered include: experimental basis, wave mechanics, Schrödinger's equation, one-dimensional potentials, orbital angular momentum, central force problems, matrix representation, spin, and approximation methods. Students are advised to take PHY 3201 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 4260
Statistical Mechanics
3 U; 3 Lect. 1 Tut.; 1st term
This course provides an introduction to the statistical mechanics of classical as well as quantum systems via the theory of ensembles. Topics covered include: microcanonical ensemble, canonical ensemble, open systems and grand canonical ensemble, Bose-Einstein and Fermi-Dirac statistics and their applications, properties of quantum ideal gases, and transport phenomena. Students are advised to take PHY 3052 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY4320
Photonics: Materials and Devices
3 U; 3 Lect. 1 Tut.; 2nd term
A broad survey of the materials used and the generation, transmission, modulation and detection of light by optoelectronic devices. Emphases are placed on the operational principles and applications of both devices and materials in communications, data processing and as industrial transducers. Students are advised to take PHY 3202 or its equivalent before taking this course.

PHY 4330
Instrumentation I
3 U; 2 Lect. 3 Lab.; 1st term
This course provides an introduction to the working principles and operation techniques of instruments commonly used in experimental physics. Topics covered include: transducers and sensors; signal conditioning, propagation and conversion; noise, signal recovery techniques, computer interface, vacuum techniques, and integrated-circuit instrumentation. This course also includes laboratory experiments for practice and illustration of the subject matter. Prerequisite: permission of the instructor.

PHY 4370
Computational Physics
3 U; 3 Lect. 1 Tut. 3 Lab.; 1st term
This course is intended to provide a solid training in the computational techniques for solving various physical problems. The following topics will be discussed: basic numerical methods, matrix problems in physics, numerical methods for partial differential equations in physics, modelling of continuous systems, and applications of Monte Carlo simulation in statistical physics. Students are advised to take PHY 2351 before taking this course. Prerequisite: permission of the instructor.

PHY 4410
Modern Optics
3 U; 3 Lect. 1 Tut.
This course provides an overview of the basic principles and applications of various branches of modern physics. Topics covered include: interference and diffraction, Fourier optics, holography, laser physics, polarization and waves in anisotropic media, and introduction to nonlinear optics. Students are advised to take PHY 4211 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 4420
Plasma Physics
3 U; 3 Lect. 1 Tut.
This course is intended to introduce the students to the basic properties of plasma. Various important physical processes in plasmas will be discussed. Topics covered include: properties of plasmas, charged particle motions, fluid and kinetic descriptions of plasmas, waves in fluid plasmas, equilibrium and stability, collisions and transport phenomena, and Vlasov theory of electron plasma waves. Prerequisite: PHY 3022, 3041 and 3052 or their equivalents, and permission of the instructor.

PHY 4440
Laser Principles and Applications
3 U; 3 Lect. 1 Tut.; 1st term
This course provides an exposition of the basic principles as well as the applied aspects of laser. Topics covered include: electromagnetic theory, ray tracing in optical systems, propagation of laser beams, resonant cavities, laser oscillators and amplifiers, quantum

treatment of two-level system, and laser applications. Students are advised to take PHY 3041 and 3202, or their equivalents before taking this course. Prerequisite: permission of the instructor.

PHY4450
Solid State Physics
3 U; 3 Lect. 1 Tut.; 2nd term
This course aims at providing students with the essential concepts of modern solid state physics. The thermal, electrical, and magnetic properties of solids will be discussed via microscopic models. Topics covered include: survey of crystal lattices, elastic scattering of waves, atomic vibrations, electrons in crystals, thermodynamics of phonons and electrons, electrical and thermal conduction, magnetic properties, and superconductivity. Students are advised to take PHY 3202 or its equivalent before taking this course or permission of the instructor.

PHY 4460
Relativity
3 U; 3 Lect. 1 Tut.; 2nd term
This course serves as an introduction to the central ideas of the theory of special relativity and general relativity. Topics in the theory of special relativity include: Lorentz transformation, relativistic kinematics and collisions, covariant formulation of electrodynamics. Elements of differential geometry such as metric, vectors, covariant differential and curvature will also be introduced. Topics in the general theory of relativity include: gravity as spacetime curvature, geodesic equation, Einstein' s equations, Schwarzschild metric, black holes, Robertson-Walker metric, and cosmology. Students are advised to take PHY 3022 and 3041, or their equivalents before taking this course. Prerequisite: permission of the instructor.

PHY 4520
Selected Topics (Visual Exploration in Physics)
3 U; 2 Lect. 1 Tut. 3 Lab.
The course aims at introducing presentation techniques for physical concepts and phenomena, as well as the use of graphical and real time animation skills, in teaching and learning of physics. Modern apparatus and programming methods will be introduced. Attention will be paid to the advantages of these tools over traditional programming, their capabilities in solving physical problems analytically, in multilingual and audio-visual presentation, and in the delivery of physical knowledge over the cyber world. Exercises all based on physical systems and existing algorithms are designed to provide students with hands-on experience, and to consolidate their physical concepts and mathematical skills. Students are advised to take PHY 2351 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 4530
Selected Topics (Astrophysics)
3 U; 3 Lect. 1 Tut.; 2nd term
This course provides an introduction to modern astronomy and cosmology. Topics covered include: star formation and pre-main sequence evolution, main sequence stars, post main sequence evolution: red giants, supernovae, white dwarfs, neutron stars and black holes. Prerequisite: students must have passed in PHY 3022, 3201, 3202 and 3052, or their equivalents or permission of the instructor.

PHY 4540, 4550
Selected Topics
3 U each; 3 Lect. 1 Tut.
Different topics may be offered from year to year, depending on available expertise and current developments. Prerequisite: permission of the instructor.

PHY4610/4620

Project I/II
3/3 U; 3 Tut. 6 Lab.; 2-term
A project in experimental or theoretical physics, either in research or in reviewing the literature. These two courses should normally be taken as a sequence. Prerequisite: permission of the instructor.

PHY 4910
Advanced Laboratory
3 U; 6 Lab.
Experiments on physics and materials science. Prerequisite: permission of the instructor.

PHY 5410
Quantum Mechanics II
3 U; 3 Lect. 1 Tut.; 2nd term
This course will discuss various theoretical topics of non-relativistic quantum mechanics at the graduate level. The quantum mechanics of many-body systems will also be introduced. Topics covered include: operator methods in quantum mechanics, addition of angular momenta, variational method, stationary perturbation theory, time-dependent perturbation theory, scattering theory, and introduction to the quantum theory of many-body systems. Prerequisite: permission of the instructor.

PHY 5420
Classical Electrodynamics
3 U; 3 Lect. 1 Tut.
This course is intended to provide an introduction to the theory of classical electrodynamics at the graduate level. The emphasis is on the problems of electromagnetic radiation and the covariant formulation of electrodynamics. Selected topics of current research interest will also be discussed. Prerequisite: permission of the instructor.

PHY 5430
Solid State Theory
3 U; 3 Lect. 1 Tut.; 2nd term
This course serves as an introduction to the quantum theory of solid state physics at the graduate level. Topics covered include: band theory of electron in a periodic potential, semiclassical theory of electron dynamics, quantum theory of lattice dynamics, electron-phonon interaction, transport properties of solids, superconductivity, and selected topics of current research interest. Prerequisite: PHY 3052 and 4221, or their equivalents, and permission of the instructor.

PHY 5440
Astrophysics
3 U; 3 Lect. 1 Tut.; 1st term
This course is intended to provide an introduction to contemporary theoretical astrophysics. Topics covered include: tools for probing astrophysical phenomena, structure and evolution of stars, introduction to the general theory of relativity and cosmology, and relativistic astrophysics. Prerequisite: permission of the instructor.

PHY 5460
Instrumentation II
3 U; 2 Lect. 4 Lab.
Principles, instrumentation, experiments and data interpretation of spectroscopy, thermal analysis, microscopy and other instrumentation. Laboratory experiments for practice and illustration of the subject matter. Prerequisite: PHY 4330 or its equivalent or special permission of the instructor.

PHY5510

Topics in Theoretical Physics (Advanced Statistical Mechanics)
3 U; 3 Lect. 1 Tut.
This course provides an introduction to the major ideas and methods in equilibrium statistical mechanics as well as in nonequilibrium statistical physics. Topics will be selected from the statistical mechanics of magnetic systems; interacting fluids and soft matter; theory of critical phenomena and the renormalization group; stochastic dynamics and nonequilibrium processes; introduction to quantum statistical mechanics; and other topics of current interest in statistical physics. Prerequisite: PHY 4260 or its equivalent or permission of the instructor.

PHY5520
Topics in Theoretical Physics (Introduction to Many-body Theory)
3 U; 3 Lect. 1 Tut.
This course provides an introduction to the basic concepts and theoretical techniques of the quantum theory of many-body systems at zero-temperature as well as at finite temperature. Topics covered include: second quantization, Green' s functions at zero-temperature, Green' s functions at finite temperature, perturbation theory and Feynman diagram, equations of motion of the Green' s functions, linear response theory, and applications of many-body theory in condensed matter physics. Prerequisite: permission of the instructor.

PHY5530
Topics in Theoretical Physics (Introduction to Particle Physics)
3 U; 3 Lect. 1 Tut.
An introductory survey of major ideas and important results in particle physics. Topics include symmetries, relativistic quantum mechanics, perturbation theory, quantum electrodynamics, the Standard Model, and the relationship between particle physics and cosmology. Prerequisite: PHY 5410 or its equivalent, or permission of the instructor.

PHY 5540
Topics in Theoretical Physics (Advanced Computational Physics)
3 U; 3 Lect. 1 Tut.; 1st term
This course is intended to provide a solid training in the advanced techniques of contemporary computational physics. Topics covered include: classical Monte Carlo method and applications, quantum Monte Carlo techniques and applications, exact diagonalization technique for quantum many-body systems, random systems, molecular dynamics and classical fluids, and selected topics of current interest in computational physics. Prerequisite: permission of the instructor.

PHY 5550
Topics in Theoretical Physics (Quantum Optics)
3 U; 3 Lect. 1 Tut.
Concept of photons, properties and applications of nonclassical light, photo-detection of optical coherence, photon-atom interaction models, quantum theory of damping, laser theory, atom coherence effects and an introduction to quantum communication. Students are advised to take PHY 4221 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 5560
Topics in the Frontiers of Physics
3 U; 3 Lect. 1 Tut.; 2nd term
Topics of contemporary interest will be selected both from fundamental physics and from physics with important applications to technology. The objective is to introduce students to the frontiers of physics. The level of presentation assumes basic understanding of undergraduate physics. Prerequisite: permission of the instructor.

PHY5570

Methods in Theoretical Physics II
3 U; 3 Lect. 1 Tut.; 1st term
The aim of the course is to provide students with the essential mathematical physics background needed for carrying out postgraduate studies in physics. Topics will be selected from complex analysis including analytic functions, Laurent series, Cauchy-Riemann conditions, residue theorem and its applications; ordinary differential equations including the Fronbenius method, Green's functions, special functions and their applications; partial differential equations including Green's functions, eigenfunction expansions and boundary-value problems; perturbation theory and its application in physics; probability and statistics with applications in physics; and other topics of relevance to physics. Students are expected to have taken PHY 2252 or 2601 or its equivalent before taking this course. Prerequisite: permission of the instructor.

PHY 5620
Topics in Experimental Physics (Thin Film Physics and Technology)
3 U; 3 Lect.; 1st term
This course provides an introduction to the physical properties as well as the methods of preparation of thin films. Topics covered include: vacuum science and technology, thin film deposition techniques, growth processes and modes, characterization, epitaxy, lattice engineering, metastable phases, artificial structures, novel properties in thin films: superconductivity, giant-magnetoresistance and colossal magnetoresistance effects, modulation doping and quantum wells, superhard coatings, and transparent conducting coatings. Prerequisite: permission of the instructor.

PHY 5630, 5640, 5650
Topics in Experimental Physics
3 U each; 3 Lect. 1 Tut.
Topics of current interest in experimental physics, depending on available expertise and current developments. Prerequisite: permission of the instructor.

Study Scheme

1. Major Programme

A. Applicable to students admitted in 2003-04 and thereafter

Students are required to complete a minimum of 66-67 units of courses as follows:

(i)	Required Courses (Please see Note): PHY 0211, 0222, 0411, 2001, 2002, 2003, 2004, 2351, 2811, 2822, 3011, 3041, 3052, 3201, 3202, 3811, 3822, 4211, 4260	48 units
(ii)	Elective Courses: Students are required to take at least <u>two</u> courses from Group A: <u>Group A</u> PHY 3022, 3320, 3350, 4221, 4320, 4330 <u>Group B</u> PHY 2400, 2601, 4370, 4410, 4420, 4440, 4450, 4460, 4520, 4530, 4540, 4550, 4610/4620, 4910, 5410, 5420, 5430, 5440, 5460, 5510, 5520, 5530, 5540, 5550, 5560, 5570, 5620, 5630, 5640, 5650, MSE 2011#, 4430#, 4440#, 4450#, SCI 2400#	18-19 units
		Total: 66-67 units

to be included in the Major GPA as well

Recommended course pattern

First Year of Attendance	
1st term : PHY 0211, 2001, 2004, 2351, 2811	12 units
2nd term : PHY 0222, 2002, 2003, 2822, elective course	10-14 units
Second Year of Attendance	
1st term : PHY 3011, 3041, 3201, 3811, elective course	11-15 units
2nd term : PHY 3052, 3202, 3822, elective course(s)	8-15 units
Third Year of Attendance	
1st term : PHY 0411, 4260, elective course(s)	7-11 units
2nd term : PHY 4211, elective course(s)	6-10 units
	Total: 66-67 units

B. Applicable to students admitted in 2001-02 and 2002-03

Students are required to complete a minimum of 60-61 units of courses as follows:

(i)	Required Courses (Please see Note): PHY 0211, 0222, 0411, 2001, 2002, 2003, 2351, 2811, 2822, 3011, 3041, 3052, 3201, 3202, 3811, 3822, 4211, 4260	45 units
(ii)	Elective Courses: Students are required to take at least <u>two</u> courses from Group A: <u>Group A</u> PHY 3022, 3320, 3350, 4221, 4320, 4330 <u>Group B</u> PHY 2400, 2601, 4370, 4410, 4420, 4440, 4450, 4460, 4520, 4530, 4540, 4550, 4610/4620, 4910, 5410, 5420, 5430, 5440, 5460, 5510, 5520, 5530, 5540, 5550, 5560, 5570, 5620, 5630, 5640, 5650, MSE 2011#, 4430#, 4440#, 4450#, SCI 2400#	15-16 units
		Total: 60-61 units

\# *to be included in the Major GPA as well*

Recommended course pattern

First Year of Attendance	
1st term : PHY 0211, 2001, 2351, 2811, elective course	9-13 units
2nd term : PHY 0222, 2002, 2003, 2822, elective course	10-14 units
Second Year of Attendance	
1st term : PHY 3011, 3041, 3201, 3811, elective course	11-15 units
2nd term : PHY 3052, 3202, 3822, elective course(s)	8-15 units
Third Year of Attendance	
1st term : PHY 0411, 4260, elective course(s)	4-11 units
2nd term : PHY 4211, elective course(s)	6-10 units
	Total: 60-61 units

Note: Students should obtain Grade "D" or above in each of the courses of PHY 2001, 2002 and 2003. Otherwise, they are required to repeat the course(s). Students who cannot meet the Grade "D" requirement in any one of the courses mentioned above after two attempts will be required to withdraw from the University. Please refer to Reg. 15.2(d) of the General Regulations Governing Full-time Undergraduate Studies.

2. Minor Programme

A. Applicable to students admitted in 2002-03 and thereafter

Students are required to complete a minimum of 18 units from the following courses and other elective courses as approved by the Department. The completed courses must include at least 6 units of PHY courses coded 3000 or above.
PHY 2001, 2002, 2003, 2351, 2400, 2601, 3011, 3022, 3041, 3052, 3201, 3202, 3320, 3350, 4211, 4221, 4260, 4320, 4330, 4370, 4410, 4420, 4440, 4450, 4460, 4520, 4530, 4540, 4550

Notes:
1. Materials Science and Engineering Majors may select MSE 2001 in place of PHY 2001 to fulfil the Minor programme requirements.
2. Materials Science and Engineering Majors may select MSE 2002 in place of PHY 2003 to fulfil the Minor programme requirements.
3. Materials Science and Engineering Majors are not allowed to select PHY 3052 to fulfil the Minor programme requirements.
4. Electronics Engineering Majors are not allowed to select PHY 3320 to fulfil the Minor programme requirements.
5. Mathematics Majors are not allowed to select PHY 2601 to fulfil the Minor programme requirements.
6. Computer Science and Computer Engineering Majors are not allowed to select PHY 2351 to fulfil the Minor programme requirements.

B. Applicable to students admitted in 2001-02

Students are required to complete a minimum of 15 units from the following courses and other elective courses as approved by the Department:
PHY 2001, 2002, 2003, 2351, 2400, 2601, 3011, 3022, 3041, 3052, 3201, 3202, 3320, 3350, 4211, 4221, 4260, 4320, 4330, 4370, 4410, 4420, 4440, 4450, 4460, 4520, 4530, 4540, 4550

Notes:
1. Electronics Engineering Majors are not allowed to select PHY 3320 to fulfil the Minor programme requirements.
2. Mathematics Majors are not allowed to select PHY 2601 to fulfil the Minor programme requirements.
3. Computer Science and Computer Engineering Majors are not allowed to select PHY 2351 to fulfil the Minor programme requirements.

3. Course Exemptions

Physics Majors

Substitute Courses (Applicable to students admitted in 2001-02 and thereafter)
Students who fail no more than one required course may be allowed to substitute it by another elective course coded PHY 3000 level or above as approved by the Department, provided that: 1) the course is failed in the final two terms of attendance before graduation, and 2) the students concerned satisfy all other graduation requirements.

Physics Minors

Certain prerequisite/co-requisite conditions for registering for the courses may be waived; intending Minor students should consult the Department of Physics individually.

4. Faculty Language Requirement

(Please refer to the "Faculty Language Requirement" of Faculty of Science for details.)