DESCRIPTION OF GRADUATE COURSES

EP 50l Electronics I (3-0)6
An experimental course on signal analysis. Analysis of periodic signals. Transient signals. Correlation. Special analysis. Amplifiers. Computing networks. Generalization. Transfer functions. Analog circuit examples.

EP 502 Electronics II (3-0)6
General description of operational devices. Departures from ideal and previsions. Measurements. Linear circuits. Non-linear circuits. Constant current and voltage sources. Signal generation. Filters. Conditioners. Memory. Measurement circuits.

EP 503 Advanced Optics I (3-0)6
Light rays. Plane and spherical surfaces. Thin and thick lenses. Spherical mirrors. Effects of stops. Ray tracing lense aberations. Optical instruments. Light waves. Superposition of waves. Interference of two beams of light. Interference involving multiple reflection. Fraunhofer diffraction by a single opening. Double slit. Diffraction grating. Frensnel diffraction. Velocity of Light. Electromagnetic character of light. Sources of light and their spectra. Absorption and scattering. Dispersion. Polarization of light. Reflection. Double refraction. Interference of polarized light. Optical activity. Magneto-optics and electro-optics.

EP 504 Advanced Optics II (3-0)6
Classical molecular theory of optical phenomena. Quantization of the energy in atoms. Principles of wave mechanics. Stationary states of several atomic systems. Atomic spectra. Fundamentals of molecular spectra. Refraction and scattering. Anisotropy and birefringence. Simulated emission and absorption of electromagnetic radiation. Fundamentals of spectrometry.

EP 505 Special Theory of Relativity (3-0)6
Foundations of special relativity. Minkowski space and Lorentz transformations. Spinors, flat space-time theories of zero rest-mass fields including gravitation. Conformed structure of Minkowski infinity the role of acceleration in special relativistic electrodynamics.

EP 506 General Theory of Relativity (3-0)6
Elements of tensor calculus and Riemannian geometry. Principle of equivalance. Einstein's equations for the gravitational field. Special solutions. Cosmological problems.

EP 507 Non-Relativistic Quantum Mechanics (3-0)6
Basic principles of wave mechanics. Shrödinger equation. Angular momentum. Transformation theory. Symmetry and invariance. Approximation methods. Scattering theory. Many particle systems.

EP 508 Relativistic Quantum Mechanics (3-0)6
Quantum theory of radiation. Dirac equation. Covariant perturbation theory and applications.

EP 509 Theoretical Atomic Physics (3-0)6
Theory of atomic spectra. One-electron atoms. Interaction of one-electron atoms with electromagnetic radiation. Fine structure. Hyperfine structure. Many-electron atoms. Interaction of many-electron atoms with electromagnetic field. Atomic collisions. Atom-atom collisions.

EP 510 Molecular Physics (3-0)6
Introduction to molecular structure. Electronic, vibration and rotational energies of molecules. Dipole transitions. ElectronicaI analysis of diatomic molecules. Hybridization. General methods of molecules calculations. Spectroscopic methods and spectroscopic analysis of small molecules.

EP 511 Special Topics in Molecular Physics (3-0)6
Intermolecular forces. Long and short range interactions. Interactions of small atomic systems. Physical absorption and molecular collision theory. Scattering by a central force. Elastic and inelastic collisions. Transition probabilities and collisional energy transfer. Scattering of atoms and molecules from solid surfaces.

EP 512 Solid State Theory I(3-0)6
Crystal symmetry. Electron states. Dynamics of electrons. Transport and optical properties.

EP 513 Solid State Theory II (3-0)6
Photons. Electron-photon interactions. Interatomic forces and atomic properties. Principles of many-body techniques. Superconductivity.

EP 514-515 Advanced Quantum Theory I-II (3-0)6
Review of quantum mechanics. Many particle-systems. Introduction to field quantization. Quantum theory of radiation. Calculation of scattering and decay process in relativistic quantum mechanics. Higher order corrections. Symmetry and invariance. Representation theory of Lorentz and Poincare Groups. Scattering theory. Analytical properties of scattering amplitudes. Regee poles. Dispersion relations.

EP 516 Statistical Mechanics (3-0)6
Elements of classical and quantum statistics of non-interacting particles. Methods of Boltzmann and Gibbs; the H-theorem.

EP 517 Analytical Mechanics (3-0)6
Tensor calculus and differential forms. Lagrangian and Hamiltonian formulations. Dynamical systems with constraints. Symmetry and conservation principles. Classical Noether theorem. Contact transformations and Hamilton-Jacobi formulations. Motion of charged particles in electromagnetic fields.

EP 518 Electromagnetic Theory I (3-0)6
Electrostatics and magnetostatics. Boundary-value problems and their solutions. Introduction to Maxwell's equations and their solutions in simple coordinate system.

EP 519 Electromagnetic Theory II (3-0)5
Diffraction. Radiation. Introduction to special relativity. Covariant formulation radiation from moving charges; multipole expansions; radiation reaction.

EP 520 Particle Physics I (3-0)6
Properties and interactions of elementary particles; experimental techniques to study them. Invariance principles.

EP 521 Particle Physics II (3-0)6
Strange particles. Resonances. Determinations of spin. Parity. Magnetic moment, Selected topics.

EP 522 Plasma Physics (3-0)6
Plasma parameters. Particle-orbit theory. Wave-orbit theory. Vlasov equation. Interaction. Instabilities.

EP 523-524 Introduction to Quantum Field Theory I-II (3-0)6
General principles of quantization of fields. Symmetry and invariance. Representations of Lorentz and Poincare groups. Quantization of free fields. Quantization of interacting fields. Covariant perturbation theory and Feynman graph techniques. Quantum electrodynamics. Renormalization theory.

EP 525 Methods of Mathematical Physics I (3-0)6
Vector spaces; normed, inner product and Hilbert spaces. Functions of a complex variable. Special functions of mathematical physics.

E**P 526 Methods of Mathematical Physics II (3-0)6**
Hilbert space. Linear operators in a Hilbert space. Elements of the theory of distributions. Partial differential equations.

EP 527 Solar Energy I (3-0)6
Solar flux. Luminescence. Collector optics. Mirror collector optics. Optical surfaces and selective surfaces.

EP 528 Solar Energy II (3-0)6
Selected topics of current interest in solar energy will be discussed.

EP 529-530 Group Theory and Its Applications in Physic I-II (3-0)6
Basic algebraic concepts. Symmetry and invariance in physics. Abstract group theory. Representation theory of finite groups. Lie groups. Lie algebra and their representations.

EP 531 Semiconductor Physics I (3-0)6
Energy states. Perturbation of semiconductors by external parameters. Absorption relationships between optical constansts. Absorption spectroscopy. Radiative transitions. P-N junction. Photoemission. Photovoltaic effects.

EP 532 Semiconductor Physics II (3-0)6
Wave mechanics. Properties of semiconductors. Semiconductor electronics. Thermoionic and field emisions. Photoemmission. Photoconductivity. Luminescence. P-N junction diodes. Transistors. Field effect transistors.

EP 533 Semiconductor Optoelectronics I (3-0)6
Semiconductors; crystal structure and technology issues. Properties of semiconductors; electronic states. Doping and carrier transport. Optical properties of semiconductors. Excitonic effects and modulation of the optical properties. Semiconductor junction theory. Optoelectronic detectors. Noise and photoreceiver. The light emitting diode. Laser diode; static properties. Semiconductor lasers; dynamic properties. Modulation and amplification devices. Optical communication systems; device needs.

EP 534 Atomic Spectroscopy (3-0)6
Line spectra and elements of atomic theory. Finer details of atomic spectra. Photoluminescence. Transition probabilites.

EP 535 Theoretical and Computational Physics of Quantum Wells (3-0)6
Semiconductors and heterostructures. Solutions to Schrödinger's equation. Numerical solutions. Diffusion. Impurities. Excitons. Carrier scattering. Empirical pseudopotential theory. Microscopic electronic properties of heterostructures.

EP 536 Strained-Layer Quantum Wells and Their Applications (3-0)6
Theoretical studies of strained-layer quantum-well lasers. Characteristics of strained InGaAs/InGaAsP quantum well lasers lattice matched to GaAs. Optical gain in strained quantum wells. Characterisation of strained-layer quantum wells. Crystal growth and optical properties of (111) -oriented strained-layer quantum wells. Preparation and characterization of strained-layer superlattice structures for their application to laser diodes. Emission dynamic of microcavity. Visible emitting (AlGa)InP laser diodes. InAsP strained quantum wells and its application to 1.3 μm lasers.

EP 537 Semiconductor- Laser Fundamentals (3-0)6
Basic concepts. Free-carrier theory. Coulomb effects. Correlation effects. Bulk band structures. Quantum wells. Applications.

EP 538 Lasers and Masers (3-0)6
Review of quantum mechanics. Energy levels of atoms and molecules. Interaction of electromagnetic radiation with individual atoms. Principles of lasers. Solid, liquid, gas and semiconductor lasers.

EP 539 Quantum Computation (3-0)6
Quantum circuits; Quantum computing algorithims; Quantum Fourier transform and its applications; Quantum search algorithms; Quantum computers.

EP 540 Quantum Information Science (3-0)6
An introduction to quantum noise and quantum operations; Distance measures for quantum information; Quantum error-correction; Entropy and information; Theory of quantum information.

EP 541 Nuclear Instrumentation I (3-0)6
Properties of nuclear radiation. Ionization chambers. Geiger and Scintillation counters. Neutron detection methods. Solid-state detectors. Pulse shaping. Pulse amplifiers. Pulse height analysers. Counting statistics.

EP 542 Nuclear Instrumentation II (3-0)6
System requirements for nuclear particle detection. Bipolar and field effect transistors. Transistors as a circuit element. Basic circuit techniques. Nuclear pulse amplifiers. Low noise preamplifiers. Pulse amplitude discriminators Counting circuit. Coincidence and time-spectrometer circuits. Multichannel pulse data analysis.

EP 543 Nanosecond Pulse Techniques (3-0)6
Detection of radiation. Conversion of nuclear radiation to light. Photon detectors. Conversion of nuclear radiation to electrical signal. Active and passive circuit elements. Pulse shaping. Pulse amplifiers. Time analysers. Logic circuits. Pulse height analysers. Scaling circuits. Pulse generators. Light pulse generators. Special testing methods.

EP 544 Nuclear Digital Circuits (3-0)6
Analog to digital converters. Pulse height discriminators. Digital encoding. Time to digital converters. Coincidence circuit. Basic digital circuits. Scalers and registers. Logical and arithmetical digital circuits. Multiscaler arrays. Multichannel analysers. Multiparameter analysers. On-line computers.

EP 545 Physical Methods in Molecular Spectroscopy (3-0)6

Instrumentation and some applications of UV, IR and electron spin resonance. Nuclear magnetic resonance and mass spectroscopy. Principles of atomic absorption fluorescence and phosphorescence.

EP 546 Interfacial Phenomena (3-0)6
Surfaces and interfaces in molecular reactions. Thermodynamics and structure of interfaces. Homogeneous and heterogeneous nucleations. Surface properties at molecular levels. Role of surfaces in molecular reactions.

EP 547 Computational Methods in Quantum Mechanics (3-0)6
Systems, molecules and their interaction with radiation. Physical applications of perturbation theory.

EP 548 Fluid Mechanics I (3-0)6
Ideal fluids. Viscous fluids. Turbulence. Boundary layers. Thermal conduction in fluids. Diffusion. Surface phenomena. Sound and shock waves.

EP 550 Nuclear Fission (3-0)6
The fissions barrier. Spontaneous fission. Fission width. Photofission. Neutron induced fission. Fission fragment angular distribution. Competition between fission and neutron emission. Fission cross section. Barrier height. Mass and energy yield of fission fragments. Mass and charge distribution. Prompt neutrons in fission. Prompt gamma rays. Ternary fission. Multimodal fission model.

EP 549 Fluid Mechanics II (3-0)6
One-dimensional gas flow. Intersection of surfaces of discontinuity. Two-dimensional gas flow. Flow past finite bodies. Fluid dynamics of combustion. Relativistic fluid dynamics of superfluids. Fluctuations in fluid dynamics.

EP 551 Modern Physical Techniques (3-0)6
X-ray diffraction. Neutron diffraction. Principles of electron microscopy. Specimen preparation techniques for electron microscopy. Electron-probe micro-analysis. X ray spectrometry. Atomic absorption spectroscopy. Activation analysis.

EP 552 Experimental Reactor Physics (3-0)6
Nuclear particles and interaction. Radioactive decay and statistics. Neutron sources. Radiation detectors and dosimeters. Nuclear electronics. Flux density and neutron spectrum measurements. Activity and cross-section measurements.

EP 554 Advanced Nuclear Physics(3-0)6
Detailed study of alpha decay, beta decay and gamma decay; accelerators, nuclear spin and moments, meson physics, applications of nuclear physics

EP 555 Nuclear Reactions (3-0)6
Conservation laws in nuclear reactions. Scattering matrix and reaction channels. Nuclear reaction models and cross sections. Compound nuclear model. Breit-Wigner Formula. Optical model. Nuclear reactions induced by neutrons and charged particles. Direct reactions. Nuclear reactions induced by gamma rays. Nuclear reactions of heavy ions.

EP 556 Atomic and Molecular Orbital Theory I (3-0)6
Electronic structure of atoms. Band theory. Symmetry in molecules. Group theory.

EP 557 Atomic and Molecular Orbital Theory II (3-0)6
Pelectron theory. Simple Hückel MO. Zero differential overlap. HF wavefunctions. Electron correlation. MO theory of radicals and transition state. Chemical reactivity.

EP 558 Atomic and Molecular Orbital Theory III (3-0)6
Background for semi empirical theories. Hückel theory and topology. SCF procedure. ZDO approximation. CNDO methods. MINDO methods. PNDDO methods. PCILO and X Methods. Consistent force field. Diatomic in molecules. Ground state potential energy surface. Electronic excited states. Approximate molecular orbital theory. Nuclear and electron magnetic resonance. Molecular spectroscopy.

EP 559 Symmetry in Molecules and Group Theory (3-0)6
Symmetry element and symmetry operations. Multiple symmetry operations. Multiplication table and point groups. Theory of group representations. Applications to molecular orbitals, molecular spectroscopy directed valance.

EP 560 Introduction to Statistical Thermodynamics (3-0)6
Statistical mechanical assemblers. Statistical formulation of thermodynamical functions. Fluctuations. Statistical explanation of second and third laws. Ideal monoatomic gas. Classical results for energy and entropy. Calculation of energy and chemical potential in dense media.

EP 561 Statistical Mechanics of Liquids (3-0)6
Formal and heuristic theories of liquids. Approximate cell and hole theories. Surface tension and cohesive energies of liquids. Variation of surface energy in molecular dimensions. Solution of nonelectrolytes. Theories of solubilities. Hydrophobic bonding. General formulation of reaction equilibria and rates. The effect of solvent.

EP 562 Heat and Mass Transfer I (3-0)6
Theory of heat conduction and heat conduction equations. Thermal conductivity. Steady heat conduction. Unsteady heat conduction. Heat conduction with moving boundaries. Heat transfer by convection. Laminar flow. Forced convection in turbulent flow. Dimensional analysis. Forced convection in separated flow. Heat transfer at high velocities. Special heat transfer problems. Natural convection. Condensation and evaporation.

EP 563 Heat and Mass Transfer II (3-0)6
Thermal radiation. Basic concepts and relations. Radiation of strongly absorbing media. Radiation of weakly absorbing media. Combined transfer processes. Temperature measurement of solar radiation. Transfer of mass.

EP 564 Mass Spectrometry (3-0)6
Classification of mass spectrometers. Vacuum techniques. Ion sources. Mass analysers. Ion detection systems and applications.

EP 565 Thermal Methods of Analysis and Instrumentation (3-0)6
Classification of thermal methods. Temperature measurements. Instrumentation in thermo-gravimetry. Differential thermogravimetry. Differential thermal analysis. Differential scanning calorimetry. Evolved gas detection and analysis. Miscellaneous thermal analysis techniques. Applications.

EP 566 X-Ray Crystallography (3-0)6
Theory of X-ray production. Characteristics of x-rays. Absorption and diffraction of x-rays. X-rays diffraction methods. Filters. Analysis of crystal structures. Measurements of lattice parameters. Scattering of x-rays. Identification of crystal lattice parameters.

EP 567 Nuclear Materials (3-0)6
Nuclear energy and materials. Material properties and requirements. Fuel materials. Structural materials. Moderator. Reflector and coolant materials.

EP 568 Thermoluminescence in Solids (3-0)6
Luminescence classification, crystal defects, color centers, recombination process, models for thermoluminescence, trap filling and emptying process, methods to determine the trapping parameters, supralinearity and sensitization, optical and quenching effects, fading and thermoluminescence fading.

EP 569 Luminescence Dating (3-0)6
Natural radioactivity and annual dose, evaluation of paledose, fading, artifical irradiation, phototransfer, kinetic methods, sample collections and sample preparations, quartz-inclusion technique, fine-grain technique, pre-dose dating, zircon dating, feldspar dating, subtracting dating, thermoluminescence dating and optically stimulated luminescence dating.

EP 570 Advanced High Energy Particle Physics I (3-0)6
Group theory. Anomalies in gauge theories. Wilson operator expansion in gauge theories. current algebra. Introduction to quantum field theory of bosons and fermions. Quantum electrodynamics QED: interactions of spin 0 particles and spin 1/2 particles. Deep inelastic electron-nucleon scattering and the quark parton model.

EP 571 Advanced High Energy Particle Physics II (3-0)6
Quantum chrodynamics QCD. Phenomenology of weak interactions. Hadronic weak current and neutral currents. Hidden gauge invariance. Spontaneous symmetry breakdown. Hooft's gauges. Glashow-Salam-Weinberg gauge theory of electro-weak interactions, intermediate bosons. Higgs sector, grand unification, supersymmetry.

EP 572 Magnetism and Magnetic Properties of Materials (3-0)6
Definitions and units in magnetism; Diamagnetism; Paramagnetism; Antiferromagnetism; Magnetic Anisotropy; Domain and Magnetisation process; Fine partical and Thin films; Soft magnetic materials; Hard magnetic materials.

EP 573 Experimental Methods in Magnetism (3-0)6
Field production by solenoids; Field produced by electromagnet; Magnetic measurements in open circuits; Magnetic circuits and permeameters; Susceptibility measurements; Measurement of magnetisation; Measurement of anisotropy; Magnetic resonance: Electron Paramagnetic Resonance; Nuclear magnetic resonance.

EP 574 Surface and Thin Film Analysis (3-0)6
Atomic Collisions and Backscattering Spectrometry; Sputter Depth Profiles and Secondary lon Mass Spectrometry; Electron-Electron Interactions and the Depth Sensitivity of Electron Spectroscopies; surface structures; photon Absorption in solids; x-ray photoelectron in spectroscopy; Electron Microprobe; Auger Electron spectroscopy; Nuclear Techniques.

EP 575 Fuzzy Theory and Applications in Physics and Engineering (3-0)6
Classical and Fuzzy sets, classical and Fuzzy relations, membership functions, fuzzy arithmetic, classical and fuzzy logic, classifications, fuzzy rule based systems, fuzzy non linear simulations and fuzzy decision making. Fuzzy measures, blief, plausibility, probability ad possibility. Application topics in engineering. Miscellaneous applications in physics. Fuzzy theory applications in Quantum, Nuclear and Computational physics.

EP 576 Data Acquisition and Instrumentation in Physics and Engineering (3-0)6
Instrumentation and measurement systems, virtual instrumentation and lab tools. The while loops, for loops, waveform charts, waveform graphs, data files, shift registers, case structures in acquisition systems and softwares. Curve fitting, Fast Fourier transforms, signal processings, analog-to-digital and diþgital-to-analog conversions, counters, implementation f arithmetic functions in acquisition systems and softwares. Miscellaneous examples and applications on virtual instrumentation.

EP 577 Structure and Physical Properties of Alloys (3-0)6
Structure and properties of pure metals; solidification and solid solutions; diffusion; ordered and disordered solutions; plasticity of crystals; Annealing and property changes of alloys upon annealing; prefered orientation and directional properties; The eutectic diagram; Intermetallic compounds; Alloy chemistry; Example of copper, iron, cobalt, nickel and thin film alloys.

EP 578 Computing for Physicists (3-0)6
Overview of the Unix/Linux operating system, data manipulation and storage, job control and resource issues. Computer programming: advanced Fortran programming, other selected programming environments. Computational methods: selected topics in computational physics, errors in computing, validation, verification. Document preparation; Latex, other selected environments.

EP579 Noise Control (3-0)6
Basic Concepts of Acoustics, Sound Fields, Sound Radiation and Propagation, Acoustic Measurement and Instrumentation, Human Hearing, Industrial Noise Sources, Basic Principles of Noise Control (at source, along transmission path, at receiver, procedures, criteria, regulations), Noise Control Techniques.

EP 580 Techniques of High Energy Physics (3-0)6
Design philosophy of high energy particle physics experiments. Developments in accelerators and beam optics. Neutrino beams. Hybrid detector systems. Scintillation counters. Cherenkov counters. Wire chambers. Drift chambers. emulsion chambers. Calorimeters. Spectrometers. On-line and off-line analysis techniques. Studies of selected experiments.

EP 581 Experimental Foundations of Particle Physics (3-0)6
Leptons Quarks and hadrons. Experimental Methods. Space time symmetries. Quantum numbers and excited states. Quark states and colour. QCD Jets and gluons. Weak interactions W (and Z (bosons. Electroweak unification. Beyond the standard model. Relativistic kinematics. Amplitudes and cross-section.

EP 582 Advanced Radiation Physics (3-0)6
Fundamental Principles of nuclear physics, Atomic and nuclear radiations, X-ray production, Characteristic and continuous X-ray radiations, Auger electrons, Nuclear radioactivity, Radiation sources, Alpha, Beta, Gamma decays, Nuclear reactions and induced radioactivity, Interaction of photon with matter and its energy lost mechanism, attenuation and absorption coefficient, Interaction of charged particles with matter, Stopping power, particle range, neutron interaction with matter, Accelerators, radiation shielding and radiation dosimetry.

EP583 Architectural Acoustics (3-0)6
Basic characteristics of sound. Simple calculations, Measurement of sound, Absorption, Reverberation time, Room acoustics, Acoustic calculations, Sound transmission loss, Outdoor design, Mechanical equipment.

EP 584 Radiation Dedectors (3-0)6
Review of types of radiations, radioactivity and radiation sources; Counting Statistics and Error Prediction; Review of General Properties of Radiation Detectors, Ionization Chambers, Proportional Counters and Geiger-Mueller Counters; Scintillation Detector Principles; Photomultiplier Tubes and Photodiodes; Radiation Spectroscopy with Scintillators; Semiconductor Diode Detectors; Germanium Gamma-Ray Detectors.

EP 585 Medical Imaging (3-0)6
Ionizing Radiation; Radiography; Ultrasound Imaging (US); Image Analysis; Computed Tomography; Magnetic Resonance Imaging (MRI); Nuclear Medicine Imaging; Imaging applications in Therapy.

EP 586 Radiation Protection and Dosimeters (3-0)6
Review of types of radiations, radioactivity and radiation sources; Fundamental principles of radiation protection: elementary protection standards, radiation safety, radiation shielding, packing and shipping of any radiation sources; Interior and Exterior irradiation; Radiation dosimetry units; Radiation dose calculations; Basic principles of radiation dosimeters; Experimental dosimetry and its principles; Passive dosimeters; Retrospective dosimetry and its applications.

EP 587 Fundamentals of Corrosion (3-0)6
Corrosion, Corrosion Factors, Chemistry of Corrosion, Principles of Electrochemistry Applied to Corrosion, Corrosion Prevention by Electrochemical Methods, Corrosion of Metals; Corrosion of Materials Other than Steel, Corrosion Behavior of Metals and Alloys, Basis of Corrosion Resistance, Corrosion Behavior and Resistance, Corrosion Thermodynamics. Corrosion Kinetics.

EP599 MSc Thesis (0-1)NC
MSc Thesis studies aim to increase the level of the knowledge and the skills of students about their research providing students the ability to conduct research in the field of their thesis under the supervision of the assigned faculty member as an advisor.

EP699 PhD Thesis (0-1)NC
PhD Thesis studies aim scientific research to contribute to science in the field of students' thesis by bringing innovations and providing students with the ability to conduct original research under the supervision of the assigned faculty member as an advisor.

EP700 MSc Seminar (0-2)NC
Msc Seminar aims to improve the ability to prepare an up-to-date study in a way suitable with scientific research methods to contribute to the process of education or preparing a presentation about a subject students master and presenting it in front of a group of people under the observation of the thesis advisor.

EP 750 Non-Thesis MSc Semester Project (0-2) NC
Non-Thesis MSc semester Project requires that students can carry on an independent study under the supervision of a faculty member. Furthermore, students can select a proper subject, do the literature review, collect and evaluate data, make analyses, write the results and work under the supervision of the faculty member.

EP800 PhD Seminar-I (0-2) NC
PhD Seminar-I aims to improve the ability to prepare up-to-date research in a way suitable with scientific research methods to contribute to the process of education or preparing a presentation about a subject students master and presenting it in front of a group of people under the observation of the thesis advisor.

EP850 PhD Seminar-II (0-2) NC
PhD Seminar-II aims to improve the ability to prepare an up-to-date study in a way suitable with scientific research methods to contribute to the process of education or preparing a presentation about a subject students master and presenting it in front of a group of people under the observation of the thesis advisor.

EP 899 MSc Special Studies (4-0)NC
The M.Sc. Special Studies are aimed to enhance research and interchange state-of-the art information in technological and scientific fields.

EP999 PhD Special Topics (4-0)NC
The Ph.D. Special Topics are aimed to enhance research and interchange state-of-the art information in technological and scientific fields.

FBE501 Araştırma Yöntemleri ve Bilimsel Etik (3-0)6
Bilgi okur-yazarlığı, bilimsel yöntemler, araştırma metot ve teknikleri, bilimsel araştırma, bilimsel projelerin hazırlanması ve sunumu, etik ve tarihçesi, etik ile ilgili kavramlar ve terimler, bilimsel etiğe giriş, bilimsel araştırma ve yayınlarda etik, mesleki etik (Mühendislik ve Doğa bilimlerinde etik), bilim dünyasında etik ihlalleri ve sonuçları, Yüksek Öğretimde etik kuralları ve uygulamaları.

NAS501 Research Methods and Scientific Ethics (3-0)6
Information literacy, scientific methods, research methods and techniques, scientific research, preparation and presentation of scientific projects, ethics and its history, ethical concepts and terms, introduction to scientific ethics, ethics in scientific research and publications, professional ethics (ethics in engineering and natural sciences), violations of rules of ethics and its consequences in the scientific world, ethical rules and practices in higher education.