# course description

Fly to Italy


این فایل به منظور کمک به متقاضیان تحصیل در کشور ایتالیا توسط گروه فلای تو ایتالی به صورت رایگان تهیه شده است لطفا از خرید این فایل خودداری فرمایید.

اسفاده از این فایل در صفحات مجازی و وبسایت ها **با ذکر نام تهییه کننده** بلا مانع است.

سایت
فلای تو ایتالی

پیج اینستاگرام
فلای تو ایتالی

کانال یوتیوب
فلای تو ایتالی

کانال تلگرام
فلای تو ایتالی

# معرفی فلای تو ایتالی

سلام ...!
تیم فلای تو ایتالی متشکل از چند دانشجو که فعالیت خودمون را از ماه بهمن سال **1401** آغاز کردیم و هدف تیم ما این است که به شما کمک کنیم تا بتوانید به صورت مستقل و بدون نیاز به مشاوران مهاجرتی برای دانشگاه های ایتالیا اپلای کنید و پذیرش بگیرید . با توجه به اینکه بسیاری از موسسه های مهاجرتی هزینه های بالایی را برای اخذ پذیرش از دانشگاه های ایتالیا از دانشجو دریافت میکنند ، ما تصمیم گرفتیم با تلاش و تجربه خود به دانشجو ها کمک کنیم که بدون هزینه اضافه کار های مهاجرتی خودشون را انجام بدهند .
در این راستا در طی سال های گذشته ویدئو های مختلفی را برای نحوه اپلای کردن دانشگاه های ایتالیا ضبط و منتشر کردیم تا به دانشجویان کمکی کرده باشیم تا بتوانند در این مسیر با کمترین هزینه از دانشگاه های ایتالیا پذیرش بگیرند .

پس اگر سوال یا نیاز به راهنمایی در زمینه مهاجرت تحصیلی به کشور ایتالیا داشتید ، با ما همراه باشید و سوالات خودتون را از ما بپرسید . ما در کنار شما خواهیم بود و شما را همراهی خواهیم کرد .

مدیریت **fly to italy**

## طریق استفاده از فایل

برای استفاده از این فایل ، صفحات بعد را کپی گرفته و به دانشگاه مبدا ببرید و تاییدات لازم را بگیرید

**Internship - 2 Credits**

**Type of credit: Practical**

**Syllabus: 300 hours**

Full-time work experience in business, industry, government, and other areas of student career interest for 300 hours. The student and employer will be required to submit reports and evaluations on the experience to the departmental internship coordinator by the conclusion of the semester the student enrolled into the course.

**B.Sc. Project - 3 Credits**

Each individual or group will select, with faculty guidance and approval, a topic for independent research or investigation resulting in a thesis or project to be used to satisfy the requirement for the degree. An appropriate experimental or analytical thesis or project may be accepted.

**Microprocessors – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Introduction to basic concepts in microprocessor systems. Architecture of microprocessor systems, and investigation of all phases of troubleshooting and implementation of reliable microprocessor systems. Assembly coding of 8085 ,8086 and AVR ATmega series micro controllers and an introduction to structure and operations and their interrupt systems . Hands-on experience, practical applications and projects. Teamwork, critical thinking and problem solving are emphasized.

**Communication Circuits – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Analysis, design, and experimental evaluation of transistor-level communication circuits and micro-systems. Transmission lines, impedance matching, noise, distortion, tuned amplifiers, mixers, oscillators, phase-locked loops.

**Computer Architecture – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Number systems, codes and coding, minimization techniques applied to design of logic systems. Component specifications. Discussion of microprocessors, memory and I/O logic elements. Microcomputer structure and operation. I/O modes and interfacing. Machine language and Assembler programming. Design and application of digital systems for data collection and control of pneumatic hydraulic and machine systems. Laboratory work includes the use of microcomputers. Z80 microprocessor structure and operation.

**Electronics III – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

An advanced course on the analysis and design of electronic circuits. The topics to be studied include amplifier characteristics, amplifier design, amplifier applications, filters and tuned amplifiers, oscillators, power amplifiers and output stages, and signal generators. Circuit applications to such areas as instrumentation, signal processing and conditioning, communication, and control are considered. Important concepts are illustrated with laboratory experiments.

**Physical Electronics (Solid state physics) – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Semiconductor device characteristics and applications. Physical models of electronic conduction in solids, p-n junctions, bipolar and field effect transistors and other solid-state devices.

**Electricity Workshop – 1 Credits**

**Type of credit: Practical**

**Syllabus: 34 hours**

Fully practical course, which includes basic information about electrical wiring of apartments, demonstrating the concepts of control circuits for industrial uses and working with industrial motors.

**Modern Physics – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

This course studies the post-Newtonian conception of physics. Special theory of relativity, quantum phenomena related to electromagnetic radiation and material particles. The Bohr model of the hydrogen atom; the Schrodinger equation; the Heisenberg uncertainty principle. Selected topics in atomic and nuclear physics.

**Fundamental of Power Systems Analysis – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Overview of the power system; Introduction to Per Unit calculations; Power Generator and Transformer modeling and operation; Transmission line parameters and steady state operation of Transmission lines; Load Flow study and introduction to ETAP software; symmetrical and unsymmetrical fault analysis; introduction to protection schemes.

**Communication Systems I – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Orthogonally and signal representation in continuous time. Fourier spectrum, Fourier transforms and applications to communications. Convolution. Transfer functions and filters. Power spectral density. Amplitude modulation and applications to techniques such as DSB, AM, SSB, etc. Angle modulation and the spectra of frequency modulated signals. Techniques for the generation and demodulation of FM signals. Introduction to noise and its effects in AM and FM systems.

**Linear Control Systems – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Introductory course in control theory: system modeling, simulation, analysis and controller design. Description of linear, time-invariant, continuous time systems, differential equations, transfer function representation, block diagrams and signal flows. System dynamic properties in time and frequency domains, performance specifications. Basic properties of feedback. Stability analysis: Routh-Hurwitz criterion, Root Locus method, Bode gain and phase margins, Nyquist criterion. Classical controller design in time and frequency domain: lead, lag, lead-lag compensation, rate feedback, PID controller. Laboratory work consists of experiments with a DSP-based, computer controlled servomotor positioning system, and MATLAB and Simulink assignments, reinforcing analytical concepts and design procedures.

**Electronics II – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

The course reviews the basic electronic concepts including analog and digital signals, rectifiers and wave shaping circuits, small-signal and large-signal analysis of amplifiers, differential and multistage amplifiers, amplifier frequency response, feedback and stability, etc. Short introduction to basics of semiconductor devices is given including junction diodes, bipolar transistors, and field effect transistors. The popular circuits using semiconductor devices are studied in details. Important concepts are illustrated with structured lab experiments and through the use of Electronic OrCAD circuit simulations.

**Fundamental of Electric Machines – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

This course firstly discusses about different aspects of magnetic circuits and provides fundamental information about DC motors, which are the main topic of this course. machine construction, review and determination of electromotive force (emf), armature winding, armature reaction, compensating windings, types of machine excitations, load characteristics of motor and generators are some of the subjects and Two main topics are detailed: Transformers and AC motors. Derivation of equivalent circuit

Transformer performance, efficiency, Voltage regulation, per-unit values autotransformers, parallel operation, three-phase transformers all are discussed on transformers, and machine structure, AC machine windings, rotating field, equivalent circuit, speed-torque characteristics, speed control, starting methods, Introductions to single – phase induction motors, Introduction to synchronous machines in AC machines are surveyed.

**Signals and Systems – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

This course deals with the analysis of continuous-time and discrete-time signals and systems. Topics include: representations of linear time-invariant systems, representations of signals, Laplace transform, z-transform transfer function, impulse response, step response, the convolution integral and its interpretation, Fourier analysis for continuous-time signals and systems and an introduction to sampling.

**Logic Circuits – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Boolean algebra, logic of propositions, minterm and maxterm expansions, Karnaugh maps, Quine-McCluskey method, multi-level circuits,design and constructing and simulation of combinational and sequential circuits, multiplexers, decoders, programmable logic devices.

**Electronics I – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Introduction to electronics, operational amplifiers, diodes, linear and non-linear circuit applications involving opamps and diodes. Bipolar junction and field-effect transistors: physical structures and modes of operation. DC analysis of transistor circuits. The transistor as an amplifier and as a switch. Transistor amplifiers: small signal models, biasing of discrete circuits, and single-stage amplifier circuits. Biasing of BJT integrated circuits. Multistage and differential amplifiers. Frequency response of single-stage amplifiers. JFET and MOSFET transistors. Important concepts are illustrated with structured lab experiments and through the use of Electronic workbench circuit simulations.

**Electrical Measurement – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Methods of measurements of basic electric and electronic parameters. Study of circuits and characteristics of major electronic instruments. Basic control circuits.

**Electrical Circuits II – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

AC power, 3-phase circuits. Mutual inductance, series and parallel resonance and two-port networks. Frequency response, including Bode plots.

**Numerical Calculation – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Building upon calculus and computer programming, the course covers basic numerical methods, including linear and nonlinear algebraic equations, interpolation and approximation, ordinary differential equations, numerical integration and differentiation, finite element and perturbation. Weekly assignments involve both pencil-and-paper and computer work.

**Electromagnetic – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Brief review of vector analysis, Time-varying fields and Maxwell's equations, Scalar and vector potentials, boundary conditions, retarded potentials. The wave equation. The uniform plane wave, bio savar relationships, wave polarization, wave reflection. Transmission lines, Smith chart. Rectangular waveguides. Radiation from short dipoles, half- and quarter wavelength antennas, the radiation resistance.

**Electrical Circuits I – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

This course covers general electric circuit parameters and laws. Topics include: basic electric circuits, voltage and current sources, resistance, analysis of DC circuits, power considerations. Concepts of capacitance, inductance, and their transient behaviour. Introduction of AC sources, phasors, reactance and impedance, AC analysis of RC, RL, and RCL circuits, the effect of resonance, real and complex power in reactive loads.

**Engineering mathematics – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Engineering applications of mathematical methods. Topics include ordinary differential equations, linear algebra, calculus, Fourier analysis, Laplace transform and partial differential equations.

**English Language for Electrical Engineers – 2 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Engineering technical words, especially in the major of Electrical Engineering for future use. Other skills such as Listening, Speaking and Reading are evaluated.

**General Mathematics I & II – 3 Credits each**

**Type of credit: Theoretical**

**Syllabus: 51 hours each**

Mathematical principles such as Functions, Limits and Continuity, Polar Coordinates, Integral, Series and Advanced principles of mathematics and instructions for solving equations.

**Statistics and Probability for Engineering – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Fundamentals of probability, conditional probability, Bayes rule, random variables, functions of random variables, expectation and high-order moments, Markov chains, hypothesis testing.

**Physics II – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Electric charge and Coulomb's law, the electric field, Gauss' law, Electric Potential Energy and Potential, the electric properties of materials, Capacitance and Capacitors, DC Circuits, the magnetic field and magnetic field of a current, Faraday's law in induction, magnetic properties of materials, inductance, AC circuits, Ampere's law.

**Differential Equations – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Analysis of engineering problems formulated in terms of partial differential equations. Solutions of these mathematical models by means of analytical and numerical methods.

**Computer programming – 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Introduces computer sciences and the use of the computer for solving scientific and engineering problems using the C/C++ programming language. Students gain experience using graphical interface

and object-oriented programming concepts. Primarily for engineering students who are not planning to take advanced computer science courses.

**Physics I– 3 Credits**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Measurement, Motion in two and three dimensions, forces and Newton's laws and its application, momentum, systems of particles, rotational kinetics, rotational dynamics, angular momentum, work and kinetic energy, potential energy, conservation of energy, gravitation, Temperature, molecular properties of gasses, first law of thermodynamics, entropy and second law of thermodynamics.

**Electronic measurement – 3 Credit**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

this coursed studied various kind of sensors and its inner structures in integrated circuit level and practical usages of them, various principles of transforming the general variables such as temperature , pressure, strain to a measurable electrical variable.

**Pulse Techniques - 3 credit**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Pulse shaping by active and passive circuits, linear systems In pulse regimes, comparators, Schmitt triggers, single state and double state and oscillating multi vibrators, negative resistance and its uses, pulse amplifiers, circuits for linear voltage variation, triggering, operational amplifiers in pulse techniques.

**Digital image processing - 3 credit**

**Type of credit: Theoretical**

**Syllabus: 51 hours**

Image sampling and quantization, color, point operations, segmentation, morphological image processing, linear image filtering and correlation, image transforms, Eigen images, multiresolution image processing, noise reduction and restoration, feature extraction and recognition tasks, image registration. Emphasis is on the general principles of image processing. Students learn to apply material by implementing and investigating image processing algorithms in Matlab.

**Physics I Lab. (Heat & Mechanics)**

**Type of credit: Practical**

**Syllabus: 34 hours**

Proportionate to subjects of Mechanic physics& Heat Physics courses.

**Physics II Lab. (Electricity & Magnetism)**

**Type of credit: Practical**

**Syllabus: 34 hours**

Proportionate to subjects of Electricity and Magnetism physics.

**Electricity Workshop**

**Number of Credits: 1**

**Type of Credit: Practical**

**Prerequisite: General Workshop**

**Syllabus: 34 hours**

Prevention of electric shock (health and work safety), conductors, introduction to earth connections, Introduction to types of cables and air wires and their links, introduction to voltage breakers, Introduction to power connectors, introduction to capacitors and reactors, application of 1-pole and 2-Pole keys change and plug, news transmission systems, relays, controlling and connectors circuits, Introduction to conductors, domestic and industrial wiring, installing high and low pressure boards, Introduction to different transformers and their applications (power Trans, voltage Trans current, radio Trans).

**Electrical Measurement and Circuit Lab. I**

**Number of Credits: 1**

**Type of Credit: Practical**

**Prerequisite: Electrical Measurement or Concurrent**

**Syllabus: 34 hours**

Proportionate to subject of related course.

**Electronics Lab. I**

**Number of Credits: 1**

**Type of Credit: Practical**

**Prerequisite: Electrical measurement and Circuit lab.I & Electronics I**

**Syllabus: 34 hours**

Proportionate to subjects of related course.

**Electric Machines Lab.**

**Electronics Lab. I**

**Number of Credits: 1**

**Type of Credit: Practical**

**Prerequisite: Electric Machines or simultaneous**

**Syllabus: 51 hours**

Proportionate subjects of courses electric machines

**Logic Circuits Lab.**

**Number of Credits: 1**

**Type of Credit: Practical**

**Prerequisite: Logic Circuits**

**Syllabus: 34 hours**

Proportionate subjects of related courses.

**Linear Control Systems Lab.**

**Number of Credits: 1**

**Type of Credit: Practical**

**Prerequisite: Linear controls systems & Electric machines**

**Syllabus: 34 hours**

Proportionate subjects of related courses.