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.

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

Common Courses for All Majors

Islamic Thought I

Beginning and Resurrection

Islamic Thought II

Prophethood and Imamat

Islamic Ethics

Importance of ethics, Survey of theories about ethics Student's ethics, Education ethics

Islamic Revolution in Iran

History of Iranian revolution (1979)

Analytical History of Beginning Islam

History of Islam

Thematic Interpretation of Quran

Interpreting some verses of Quran

Persian Language

Persian poetry, Persian novels, Figure of speech, History of Persian literature

English Language

Reading techniques, Writing letters, Grammar

Physical Education I

Basic Exercises

Sport I

Soccer

Family Schematization and Population

Professor’s pamphlet

Common Engineering Courses

Calculus I

Limit, Integral, Taylor series, Improper integrals and series

Calculus II

Vectors, Linear independence, Orthogonality, Multidimensional integrals, Matrix, Eigenvalue and Eigenvectors

Differential Equations

First order equations, Second order equations, Higher order equations, Total differential equations, Non-linear equations, Using series to solve differential equations, Laplace transform

Introduction to Computer and Programming

Flow charts, Introduction to Programming in C: Functions and memory classes, Arrays and strings, Pointers, Operators, Structers Object oriented programming

Numerical Computation

Finding root of functions, Numerical integration, Interpolation, Linear algebra

Engineering Probability and Statistics

Conditional probability, Random variables and distribution, Markov chains, Expectation, Special distribution, Large random samples, Estimation,

Physics I

Kinematics, Dynamics, Thermodynamics

Physics II

Coulomb's law, Electrical fields, Voltage, Capacitors, RC, RL circuits, Faraday's law, Magnetic fields, Bio-Savart law, Maxwell's equations

Physics Lab I

Practicing concepts of the course, Physics I

Physics Lab II

Practicing concepts of the course, Physics II

General Workshop

Building a self navigating robot

Common electrical engineering courses

Electrical Workshop

Power electric circuits assembly using contactors, Fundamentals of photovoltaic

Technical English

Reading comprehension, Academic writing, Referencing, Grammar (Capitalization, Punctuation, etc.), Summarizing

Industrial Drawing

Computer aided design and drawing using Auto Cad: Orthogonal projection in European standards

Engineering Mathematics

Fourier series, Fourier transform, Wave equations, Heat equations, Laplace's equations, Residue theorem

Electrical Circuits I

1. Lumped Circuits and Kirchhoff's Law 2. Circuit Elements 3. Simple Circuits 4. First-order Circuits 5. Second-order Circuits 6. Introduction to Linear Time-invariant Circuits 7. Sinusoidal Steady-state Analysis
8. Coupling Elements and Coupled Circuits. Textbook: Basic circuit theory, Charles Desoer, Ernest Kuh

Electrical Circuits II

1. Network Graphs and Tellegen's Theorem 2. Node and Mesh Analysis 3. Loop and Cut-set Analysis 4. State Equations 5. Laplace Transforms 6. Natural Frequencies 7. Network Functions 8. Network Theorems
9. Two-ports 10. Resistive Networks 11. Energy and Passivity. 4. Textbook: Basic circuit theory, Charles Desoer, Ernest Kuh

Electrical Measurement Lab I

Practicing concepts of the course, Electrical Circuits I

Electromagnetics

1. The Electromagnetic Model: The Electromagnetic Model. Si Units and Universal Constants. Review Questions. 2. Vector Analysis: Vector Addition and Subtraction. Products of Vectors. Orthogonal Coordinate Systems. Integrals Containing Vector Functions. Gradient of a Scalar Field. Divergence of a Vector Field. Divergence Theorem. Curl of a Vector Field. Stoke's Theorem. Two Null Identities. Helmholtz's Theorem. Review Questions. Problems. 3. Static Electric Fields: Fundamental Postulates of Electrostatics in Free Space. Coulomb's Law. Gauss's Law and Applications. Electric Potential. Conductors in Static Electric Field. Dielectrics in Static Electric Field. Electric Flux Density and Dielectric Constant. Boundary Conditions for Electrostatic Fields. Capacitances and Capacitors. Electrostatic Energy and Forces. Solution of Electrostatic Boundary-Value Problems. Review Questions. Problems. 4. Solution of Electrostatic Problems: Poisson's and Laplace's' Equations. Uniqueness of Electrostatic Functions. Method of Images. Boundary-Value Problems in Cartesian Coordinates.Boundary-Value Problems in Cylindrical Coordinates. Boundary-Value Problems in Spherical Coordinates. Review Questions. Problems. 5. Steady Electric Currents: Current Density and Ohm's Law. Electromotive Force and Kirchhoff's Voltage Law. Equation of Continuity and Kirchhoff's Current Law. Power Dissipation and Joule's Law. Boundary Conditions for Current Density. Resistance Calculations. Review Questions. Problems. 6. Static Magnetic Fields: Fundamental Postulates of Magneto statics in Free Space. Vector Magnetic Potential. The Biot-Savart Law and Applications. The Magnetic Dipole. Magnetization and Equivalent Current Densities. Magnetic Field Intensity and Relative Permeability. Magnetic Circuits. Behavior of Magnetic Materials. Boundary Conditions for Magneto static Fields. Inductances and Inductors. Magnetic Energy. Magnetic Forces and Torques. Review Questions. Problems. 7. Time-Varying Fields and Maxwell's Equations: Faraday's Law of Electromagnetic Induction. Maxwell's Equations. Potential Functions. Electromagnetic Boundary Conditions. Wave Equations and their Solutions. Time-Harmonic Fields. Review Questions. Problems. 8. Plane Electromagnetic Waves: Plane Waves in Lossless Media. Plane Waves in lossy Media. Group Velocity. Flow of Electromagnetic Power and the Pointing Vector. Normal Incidence of Plane Waves at a Plane Conducting Boundary. Oblique Incidence of Plane Waves at a Plane Conducting Boundary. Normal Incidence of Plane Waves at a Plane Dielectric Boundary. Normal Incidence of Plane Waves at Multiple Dielectric Interfaces. Oblique Incidence of Plane Waves at a Plane Dielectric Boundary.

Electronics I

Semiconductors, P-N junctions, Diode circuits, BJT-DC, BJT amplifiers, MOS-DC, MOS-amplifiers.

Electronics II

MOSFETs, BJT, Building blocks of integrated-circuit amplifiers, Differential and multistage amplifiers, Frequency response, Feedback, output stages and power amplifiers, Operational amplifier circuits.
Textbook: Microelectronic circuits, Sedra Smith

Electronics Lab I

Practicing concepts of the course, Electronics I

Electric Machines I

Basic electrostatic and electromagnetic field theory, Force and torque development in magnetic circuits, Properties of magnetic materials, Direct-current machines, Synchronous machines

Electric Machines II

The transformer, Induction machines

Electric Machines Lab I

Practicing concepts of the course, Electric Machines I, II

Logic Circuits

MOS level design, Number representation, Gray code, Karnaugh map, Glitches, Decoder, Multiplexer, Adders, Comparators, Multipliers, Latches, Flip flops, PAL, PLA, Introduction to FPGA, Finite state machine, RT level design, Circuit debugging, Asynchronous stateful circuits, We also implemented all of the mentioned topics in Verilog

Logic circuits Lab.

Digital Logic Circuit Lab.: Using ALTERA FPGA created digital oscilloscope (connecting through VGA) and function generators, also by using 74XX IC series, some electrical behavior of circuits (glitch, charging and delays) were observed.

Systems Analysis

System properties, Properties of LTI systems, Fourier series, Fourier transform, Laplace transform, Z transform, Sampling, Decimation, Amplitude modulation.
Textbook: Signals and Systems, Alan V. Oppenheim

Linear Control Systems

1. Introduction to Control Systems. Examples of Control Systems. Closed-Loop Control versus Open-Loop Control. Outline of the Book. 2. The Laplace Transform. Review of Complex Variables and Complex Functions. Laplace Transformation. Laplace Transform Theorems. Inverse Laplace Transformation. Partial-Fraction Expansion with MATLAB. Solving Linear, Time-Invariant, Differential Equations. 3. Mathematical Modeling of Dynamic Systems. Transfer Function and Impulse-Response Function. Automatic Control Systems. Modeling in State Space. State-Space Representation of Dynamic Systems. Transformation of Mathematical Models with MATLAB. Mechanical Systems. Electrical and Electronic Systems. Signal Flow Graphs. Linearization of Nonlinear Mathematical Models. 4. Mathematical Modeling of Fluid Systems and Thermal Systems. Liquid-Level Systems. Pneumatic Systems. Hydraulic Systems. Thermal Systems. 5. Transient and Steady-State Response Analyses. First-Order Systems. Second-Order Systems. Higher-Order Systems. Transient-Response Analysis with MATLAB. An Example Problem Solved with MATLAB. Routh's Stability Criterion. Effects of Integral and Derivative Control Actions on System Performance. Steady-State Errors in Unity-Feedback Control Systems. 6. Root-Locus Analysis. Root-Locus Plots. Summary of General Rules for Constructing Root Loci. Root-Locus Plots with MATLAB. Positive-Feedback Systems. Conditionally Stable Systems. Root Loci for Systems with Transport Lag.7. Control Systems Design by the Root-Locus Method. Preliminary Design Considerations. Lead Compensation. Lag Compensation. Lag-Lead Compensation. Parallel Compensation.
8. Frequency-Response Analysis. Bode Diagrams. Plotting Bode Diagrams with MATLAB. Polar Plots. Drawing Nyquist Plots with MATLAB. Log-Magnitude-versus-Phase Plots. Nyquist Stability Criterion. Stability Analysis. Relative Stability. Closed-Loop Frequency Response of Unity-Feedback Systems. Experimental Determination of Transfer Functions.9. Control Systems Design by Frequency Response. Lead Compensation. Lag Compensation. Lag-Lead Compensation. Concluding Comments.
10. PID Controls and Two-Degrees-of-Freedom Control Systems. Tuning Rules for PID Controllers. Computational Approach to Obtain Optimal Sets of Parameter Values. Modifications of PID Control Schemes. Two-Degrees-of-Freedom Control. Zero-Placement Approach to Improve Response Characteristics. 11. Analysis of Control Systems in State Space. State-Space Representations of Transfer-Function Systems. Transformation of System Models with MATLAB. Solving the Time-Invariant State Equation. Some Useful Results in Vector-Matrix Analysis. Controllability. Observability. 12. Design of Control Systemsin State Space. Pole Placement. Solving Pole-Placement Problems with MATLAB. Design of Servo Systems. State Observers. Design of Regulator Systems with Observers. Design of Control Systems with Observers. Quadratic Optimal Regulator Systems.

Linear Control System Lab.

Practicing concepts of the course, Linear Control Systems

Power System Analysis I

1. Overhead transmission lines and their circuit constants 2. Symmetrical coordinate method 3.Fault analysis by symmetrical components 4. Fault analysis of parallel circuit lines 5. Per unit method and introduction of transformer circuit 6. The a-b-0 coordinate method 7. Symmetrical and a-b-0 components as analytical tools for transient phenomena 8. Neutral grounding method 9. Visual vector diagrams of voltages and current under fault conditions 10. Theory of generators 11. Transient/dynamic stability, P-Q-V characteristics and voltage stability of a power system 12. Generator characteristics with AVR and stable operation limit 13. Operating characteristics and the capability limits of generators 14. R-X coordinates and the theory of directional distance relays 15. Switching surge phenomena by circuit breakers and line switches 16. Overvoltage Phenomena 17. Power cables

Communications I

1. Signals and spectra, 2. Signal transmission and filtering: response of LTI systems, Signal distortion in transmission, Transmission loss and decibels, Filters and filtering, Quadrature filters and Hilbert Transform,
Correlation and spectral density, **3. Linear CW modulation**: Band pass signals and systems, Double-sideband amplitude, Modulators and transmitters, Suppressed -sideband amplitude, Frequency conversion and demodulation **4. Angle CW modulation:** Phase and frequency modulation, Transmission bandwidth and distortion, Generation and Detection of FM and PM.**5. Sampling and pulse modulation:** sampling theory and practice, Pulse-amplitude modulation, Pulse-time modulation, **6. Analog communication systems:** receivers for CW modulation, Multiplexing systems, Phase-locked loops**7. Probability and random variables:** Probability and sampling space, random variables and probability, statistical averages, Probability models **8. Random signals and noise:** Random processes, Random signals, Noise, Baseband signal transmission with noise, Baseband pulse transmission with noise **9. Noise in analog modulation:** Band pass noise, Linear CW modulation with noise, Analog CW modulation with noise, Comparison of CW modulation systems,Phase locked loop noise performance, Analog pulse modulation with noise.

B.Sc. Project

Calculation, Simulation, and Measurement of Leakage Inductance of High-Current Transformer at High Voltage Laboratory
Advisor: Dr. Mohseni

Technical Courses for Power Engineering

Power Systems Analysis II

1. Understand the nonlinear function optimization with constraints.
2. Obtain the economical scheduling of real power generation neglecting line losses.
3. Determine the loss coefficients of a power system network.
4. Obtain the economical scheduling of real power generation including line losses.
5. Calculate the internal voltages of loaded machines under transient conditions.
6. Understand and be able to evaluate the currents in the network for a balanced three-phase fault.
7. Transform unbalanced phasors to their symmetrical components.
8. Use symmetrical components for short-circuit analysis of unsymmetrical faults.
9. Understand the general problem of power system stability.
10. Apply the equal-area criterion for stability to system of one machine against an infinite bus bar.

Electrical Installation

1. Perform the correct installation procedures and wiring connections.
2. Perform proper installation procedures for various wiring methods.
3. Install a residential consumer service including a variety of household circuits.
4. Prepare a material list, layout drawing and panel schedule for a residential consumer service.
5. Install extra -low voltage signal circuits.
6. Prepare wiring, layout and schematic diagrams for extra-low voltage signal circuits.
7. Terminate communication, data and telephone cables.
8. Safely use test equipment and power tools commonly found in industry.

Industrial Electronics

Examines the application of electronics to energy conversion and control. Topics covered include: modeling, analysis, and control techniques; design of power circuits including inverters, rectifiers, and DC-DC converters; analysis and design of magnetic components and filters; and characteristics of power semiconductor devices.

Relaying and Protection

Basic system protection principles, measurement devices used for relaying, basic relay schemes used, and the most common schemes used in the field.

Power Systems Lab

Practicing concepts of the courses, Power Systems I & II

Electrical Machines Lab II

Practicing concepts of the course, Electrical Machines II

Relaying and Protection Lab

Practicing concepts of the course, Relaying and Protection

High Voltage and Insulation

- Describe the principles behind generating high DC-, AC- and impulse voltages
- Develop equivalent circuit models of the different high voltage generators
- Perform a dynamic response analysis of high voltage measurement systems
- Compute the breakdown strength of gas-filled insulation systems with simple geometries
- Approximately judge the breakdown strength of contaminated liquids and solids.
- Describe the principles for measurement of capacitance and dielectric loss
- Discuss ageing of electrical insulation from measurements of complex permittivity
- Compute the compel permittivity from the dielectric response function and vice versa.
- Discuss the measurement principles behind partial discharges
- Compute phase resolved partial discharge patterns from simple models

Design of High Voltage Substations and Project

Different aspects of high and medium voltage substation design, including regulatory and environmental requirements, general design considerations, and the application of switching and power equipment, fault calculations, safe grounding design, protection/control, automation and communication, and maintenance considerations.

Design of Energy Transmission Lines

Design Criteria and Loads

- Design philosophies
- Codes and standards
- Wind and ice loads
- Longitudinal loads
- Concepts of wind and weight spans

Behavior of Suspended Cables

- Basic sag and slack equations
- Ruling span concept
- Offset clipping
- Interaction between structures and cables

Loading Tree

Conductor Design and Behavior

- Conductor types
- Creep and permanent elongation
- Sag-tension calculations
- High-temperature effects
- Current vs. temperature relationships
- Vibration and galloping

Basic Structure Spotting

- Strength considerations
- Clearance requirements

Computer Analysis and Design Tools

- PLS-CADD/LITE
- 3-dimensional line modeling
- Examples

Insulators and High Voltage Lab

Practicing concepts of the course, High Voltage and Insulation

Electrical Measurement

1. Measurement Systems, Units, and Standards. 2. Measurement Errors.
3. Classical Electromechanical Instruments. 4. Electromechanical Ammeters, Voltmeters, and Ohmmeters. 5. Analog Electronic Instruments. 6. Digital Instrument Basics. 7. Digital Voltmeters, Multi meters, and Frequency Meters. 8. Low, High, and Precise Resistance Measurements. 9. Inductance and Capacitance Measurements. 10. Classical AC Bridge Methods. 11. Analog Oscilloscopes. 12. Special Oscilloscopes. 13. Signal Generators.14. Instrument Calibration. 15. Miscellaneous Instruments. 16. Power and Energy Measurement. 17. Magnetic Measurement. 18. Introduction to Transducers. 19. Telemetry.

Electric Machines 3

3-phase Transformers, Synchronous Machines, Non-salient pole synchronous generator steady-state model, Characteristics of Non-salient pole synchronous generator, Salient pole synchronous generator, Synchronous generator function while connected to the Network.

Special Machines

Single-phase AC motors, Rotating magnetic field in the single-phase induction motors, Double-phase AC motors, Permanent capacitor single phase induction motor, Capacitor start motors, Dual-capacitor start motors, Universal motors, Step motors, Step motors with variable reluctance, Permanent magnet step motors.

Microprocessors I

8088, Addressing, Memory interfacing, Timing, AVR, IO design, Memory timing, LCD, Stepper motors,
ADC sensors, Printers, D-RAM and S-RAM interfacing, PWM, Interrupts, USART

Optional courses

Fundemental of Enterpreneurship

The Founder, The Opportunity, The Founder and Team, Financing Enterpreneurial Ventures, Start-up and Beyond

Technical Illumination

Introduction to illumination, non-imaging and concentrators; sources: incandescent, fluorescent, LED, HID, modeling and experimental measurement; modeling: ray tracing, radiometry and photometry, color, polarization, and scattering; theory: radiometry, photometry, skew invariant and concentration; design methods: edge ray, flow line, tailored edge ray, non-edge ray and imaging; optics: reflectors, light pipes, couplers, films and hybrids; applications: displays, automotive, solar, sources and lighting; special topics: software modeling, optimization, tolerance and rendering.

Technical Illumination Lab

Practicing concepts of the courses, Technical Illumination