

course description



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

اسفاده از این فایل در صفحات مجازی و وبسایت ها با ذکر نام تهیه کننده بلامانع است.

کانال تلگرام
فلی تو ایتالی



کانال یوتیوب
فلی تو ایتالی



پیج اینستاگرام
فلی تو ایتالی



سایت
فلی 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 خودشان 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

UNDERGRADUATE COURSE DESCRIPTIONS

Statics: 3 Cr. Basic concepts. Forces, moments, and couples. Equilibrium of particles and rigid bodies. First and second moments. Structures (trusses, frames, machines). Distributed-force systems. Friction. Virtual work.
Prerequisite: Calculus I, Physics of Mechanics.

Thermodynamics I: 3 Cr. Properties of pure substances. Work and heat. First and second laws of thermodynamics. Entropy. Irreversibility and availability.
Prerequisite: Calculus II, Physics of Heat.

Fluid Mechanics I: 3 Cr. Fundamental concepts. Fluid statics. Basic equations in integral and differential forms. Incompressible inviscid flow. Dimensional analysis and similitude.
Prerequisites: Statics, Differential Equations.

Thermodynamics II: 3 Cr. Power and refrigeration cycles. Thermo- dynamic relations. Mixtures and solutions. Chemical reactions. Chemical equilibrium. Flow through nozzles.
Prerequisites: Thermodynamics I, Fluid Mechanics I.

Dynamics of Machinery: 3 Cr. Linkages and mechanisms. Cams. Spur gears. Gear trains. Velocity and acceleration analysis of machinery. Balance of machinery.
Prerequisite: Dynamics.

CAD/CAM and Lab.: 3 Cr. Different types of curves: B-Spline, Bezier, Nurbs. Manufacturing Strategies. Principles of G-Code generation by CAD software. Lab.: Design via Catia and Solidworks
Prerequisites: CNC Machining.

Dynamics I: 4 Cr. Kinematics of particles. Force and acceleration. Work and energy. Impulse and momentum. Plane kinematics and kinetics of rigid bodies. Motion of rigid bodies in three dimensions. Vibrations.
Prerequisites: Thermodynamics I, Fluid Mechanics I.

Strength of Materials I: 3 Cr. General concepts. Stress. Strain. Safety concepts. Axial loading. Generalized Hooke's law. Torsion of circular & non-circular members. Pure bending. Bending with axial forces. Shear stress in beams.

Fluid Mechanics II: 3 Cr. Internal incompressible viscous flow. Laminar and turbulent flows. Pipe friction. External flow. Flow in open channels. Flow measurement. Potential flow.
Prerequisite: Fluid Mechanics I.

Strength of Materials Lab.: 1 Cr. Selected experiments covering the main subjects of Strength of materials.
Prerequisite: Strength of Materials II.

Strength of Materials II: 3 Cr. Transformation of stress and strain and yield criteria. Deflection of beams. Stability of equilibrium. Design of columns. Energy and virtual work methods. Statically indeterminate problems. Plastic limit analysis.
Prerequisite: Strength of Materials I.

Design of Machine Elements I: 3 Cr. Design considerations. Stress - strain analysis. Design for static strength. Stress concentration. Failure theories. Fatigue. Shafts and couplings. Power screws. Threaded fasteners, riveted, welded, and bonded joints. Springs.
Prerequisites: Dynamics; Strength of Materials II; Engineering Drawing I.

Design of Machine Elements II: 3 Cr. Journal and rolling element bearings. Gears (spur, helical, bevel, worm). Flexible mechanical elements (belt drives, roller chains). Brakes and clutches.
Prerequisite: Design of Machine Elements I.

Heat Transfer I: 3 Cr. Steady-state conduction. Unsteady-state conduction. Principles of convection. Empirical and practical relations for forced-convection heat transfer. Radiation heat transfer.
Prerequisites: Thermodynamic I; Fluid Mechanics II; Engineering Mathematics

Design of Mechanisms: 3 Cr. Geometry of constrained plane motion with applications to linkage design. Path curvature. Inflection circle. Cubic of stationary curvature. Finite displacements. 3 and 4 separated positions. Graphical and analytical techniques.
Prerequisite: Dynamics of Machinery.

Vibrations: 3 Cr. Kinematics of vibration. Undamped and damped free vibration. Vibration under harmonic and general forcing conditions. Two and multidegree of freedom systems. Modal analysis. Continuous systems. Prerequisites: Engineering Mathematics; Dynamics 15139; Strength of Materials II.

Robotics: 3 Cr. An overview. Forward (configuration) kinematics Inverse (configuration) kinematics. Force/torque relations. Trajectory planning. Dynamics (kinetics). Positional control.
Prerequisite: Dynamics of Machinery.

Water Distribution Systems: 3 Cr. Water cycle. Urban and industrial water resources. Water distribution through pipes and channels and their design issues. Industrial water distribution systems. Design examples.

Prerequisite: Fluid Mechanics II.

Heat Exchanger Design: 3 Cr. Types of heat exchangers. Methods of thermal analysis. Overall heat transfer coefficient. Fouling factor. -NTU, F-LMTD, -P methods. Thermal-hydraulic design. Shell & tube and compact heat exchangers. Air coolers, radiators, cooling towers, furnaces, and condensers.

Prerequisite: Heat Transfer I.

Thermal Power Plants I: 3 Cr. Rankine cycle. Steam generators. Heat balance in steam generators. Impulse and reaction turbines. Condensate feed water systems. Circulating-water systems. Gas turbines and combined cycles.

Prerequisite: Thermodynamics II; Heat Transfer I.

Air Conditioning System Design: 3 Cr. Load estimating. Apparatus and duct design for air distribution. Water and steam piping design. Auxiliary equipment (pumps, motors, boilers). Water and dam systems. Fan-coil unit systems.

Prerequisite: Thermodynamics II; Heat Transfer I.

Freezing & Cooling Systems Design: 3 Cr. Theory of refrigeration methods. Refrigeration equipment (compressors, condensers, evaporators, expansion devices). Load estimating for cold stores. Cold store design. Prerequisite: Heat Transfer I.

Introduction to Computational Fluid Dynamics: 3 Cr. Fundamentals of finite-difference methods. Applications of selected model equations. Applications to simple fluid mechanics and heat transfer problems.

Prerequisite: Fluid Mechanics II.

Machine Tools Design: 3 Cr. Types of machines. Design of machine frames, components, beds, and foundations. Spindles, bearings, and guiding systems. Main drives. Drive mechanisms and clutches. Control systems.

Prerequisites: Design of Machine Elements II; Design of Mechanisms.

Automatic Control: 3 Cr. Introduction to control systems. Modelling of dynamic systems. Time-response analysis. Root locus analysis. Frequency-response analysis. Design and compensation techniques. Prerequisites: Vibrations; Fundamentals of Electrical Eng. I.

Composite Materials: 3 Cr. Introduction, definition, and classifications of composite materials. Introduction to processing methods, physical properties, and mechanical behavior of composite materials.

Prerequisites: Strength of Materials I; Materials Science.

Engineering Drawing I: 2 Cr. Projection concepts. Drawing standards. Volume and surface analysis for drawing the third multiview projection. Isometric and dimetric (oblique & nonoblique) projections. Types of sectional views. Industrial (Assembly and workshop) drawings. Dimensioning.

Engineering Drawing II: 2 Cr. Descriptive geometries (orthogonal projection, point, line, plane). Determination of length, distance, angle, and area. Method of rotation and replacing planes of projection. Intersections of lines, planes, and volumes. Perspectives. Various types of industrial drawings. Introduction to AUTOCAD software.

Jig & Fixture Design and Workshop: 3 Cr. Design of different types of jig and fixtures for drilling, welding, milling, turning. Workshop: Fabrication of a drilling jig & fixture.

Press Die Design and Workshop: fundamentals of metal sheets, design of different types of Press Dies for punching, blanking, forming, deep drawing. Fundamentals of bending parameters. Workshop: Fabrication of a punching and blanking die for industrial usage.

Universal Machine and Workshop: 4 Cr. Introduction to traditional types machining: milling, turning, grinding, drilling. Workshop: Operating all the mentioned machines in production.

Non-traditional manufacturing processes: 2 Cr. 1. Mechanical Processes: Abrasive Jet Machining (AJM), Ultrasonic Machining (USM), Water Jet Machining (WJM), Abrasive Water Jet Machining (AWJM), Ultrasonic Machining (UM) 2. Electrochemical Processes, Electrochemical Machining (ECM), Electro Chemical Grinding (ECG), Electro Jet Drilling (EJD) 3. Electro-Thermal Processes, Electro-discharge machining (EDM), Laser Jet Machining (LJM), Electron Beam Machining (EBM) 4. Chemical Processes Chemical Milling (CHM), Photochemical Milling (PCM)

Hydraulics and Pneumatics Applications and Lab.: 3 Cr. Designing different pneumatic, electro pneumatic, hydraulic control circuits.

Metrology and Lab.: 3 Cr. Calibration of measuring tools (caliper, micrometer, dial indicator, etc.). Working with sigma mechanical comparator, light-beam mechanical comparator, electrical comparator, pneumatic comparator, Roughness measurement with different apparatuses

Electrics & Electronics and Lab.: 3 Cr. Designing control circuits for power systems

Welding and Workshop: GMAW, MMAW, TIG, Spot Welding, Oxy-Acetylene Workshop: Operating all the mentioned welding methods.

Foundry and Workshop: Introduction design of different types of foundry dies.

Mechatronics and Lab.: 4 Cr. Introduction to analog and digital circuits, microcontroller, DC/Stepper/Servo motors, sensors, PLCs, Operational Amplifier.