**Courses Description** 

College: Engineering	
Department: Industrial En	ngineering
Couse ID: 403101	Description: Engineering Workshop
Full Course Description:	Materials and their classifications, measuring devices, fitting, forming, carpentry, casting, cutting welding, machining and electrical works, practical exercises and general safety.
Couse ID: 403221	<b>Description:</b> Manufacturing Processes (1)
Full Course Description:	
	Mechanical behaviour and forming of metals different types of mechanical behaviour and main factors affecting it, yield criteria, representative stress and representative strain, work due to plastic deformation, classification of forming processes with respect to temperature and strain rate, bulk deformation processes (forging, extrusion, rolling), rod and wire drawing sheet forming processes (blanking and piercing, deep drawing and bending, introduction to high energy rate forming processes).
Couse ID: 403222	<b>Description:</b> Manufacturing Procsses (2)
Full Course Description:	Material removal processes, cutting tools, fluids mechanics formation and types of chips merchants theory for determining different forces in orthogonal cutting and power consumption turning, milling drilling shaping and grinding.
Couse ID: 403223	Description: Manufacturing Processes Lab.
Full Course Description:	Experiments concerning basic material processing, operations: casting, pattern design in sand casting, welding, effect of welding variables in spot welding and arc welding, tensile test for welded specimens, cutting: tool geometry, calculations of cutting forces in turning and drilling processes, metal forming: forging process: open-die, impression-die and closed-die forging, drop hammer process, extrusion process, deep drawing process, blanking process.
Couse ID: 403241	Description: Engineering Statistics (1)
Full Course Description:	Probability concepts, discrete and continuous random variables, joint probability distribution covariance and correlations of random variables sampling and empirical distributions
Couse ID: 403251	Description: Properties of Materials
Full Course Description:	Bonding forces and energies, classification of engineering materials, crystals graphly, imperfection and strengthening mechanisms diffusion, metallography, thermal equilibrium diagram & relative cost of materials.
Couse ID: 403252	Description: Properties of Materials Lab.
Full Course Description:	Tensile and hardness testing of different materials, impact testing, non-destructive testing microscopic testing, thermal conductivity and electrical resistively of materials.
Couse ID: 403253	Description: Properties of Materials
Full Course Description:	а
Couse ID: 403311	Description: Human Factors Engineering
Full Course Description:	Physical work, physiological capacity and luminations, improving worker efficiency, anthropemetry mental work and information & input processing and decision making, design of display and control, study of the physical and social environment of the work place.
Couse ID: 403313	Description: Human Factors Engineering Lab.
Full Course Description:	Topics covered include experiments on the maximum voluntary contraction (MVC), endurance, the eye of vision testers, coordination of measurement of dextircty, maximum voluntary lefting capacity (MVLC), hand tool design, response time.
Couse ID: 403321	<b>Description:</b> Manufacturing Processes (3)
Full Course Description:	Casting: melting and solidification, sand and shell casting, defects in casting, joining of metals adhesives mechanical joint; welding, classification of solid welds, liquid welds defects and inspection of weld.

**Courses Description** 

College: Engineering	
Department: Industrial E	ngineering
Couse ID: 403322	Description: Metrology & Measurements
Full Course Description	: Errors, linear, angular and contour measurements, sine bar, rotating table fits and tolerances, interchangability, ISO shaft and hole systems of fits and tolerances, thread and gear metrology, surface texture, out of roundness and flatness measurement, sensing devices, transducers, smart sensors and transmitters, force, torque and train measurements, design of load cells, temperature, pressure and flow measurements.
Couse ID: 403323	Description: Metrology Lab.
Full Course Description	: Experiments concerning the metrology instruments: linear measurements: callipers, height, depth and dial gauges, micrometers and block gauges, angular measurements: sinebar, universal bevel protector, comparison test, snap micrometer, optical comparator, surface texture, roundness test. the coordinate measurement system, alignment test with auto-collimator, temperature, force and displacement measurements.
Couse ID: 403331	Description: Cost Analysis
Full Course Description	: Concepts and theories in accounting and cost analysis, financial statements, product cost, accounting models, systems and methods.
Couse ID: 403332	Description: Production Planning & Control
Full Course Description	: Strategic issues in designing production planning and control systems, aggregate planning, master production scheduling, material requirements, planning capacity, planning and scheduling.
Couse ID: 403333	Description: Organization Design & Control
Full Course Description	<ul> <li>Strategic planning, organization structures, philosophies and models for organizing dynamics of organization, change and organizational behaviour and culture.</li> </ul>
Couse ID: 403342	Description: Quality Control
Full Course Description	: Concepts and statistical methods employed in the assurance of product conformance to specifications, control charts for attributes and variables, proven capability analysis, acceptance of sampling plans, international standards and continuous guality improvement.
Couse ID: 403343	Description: Engineering Statistics (2)
Full Course Description	: Point and interval estimation, test of hypotheses, goodness of fit test, contingency tables, design and analysis of single factor experiments, simple linear regression and factorial design.
Couse ID: 403344	Description: Statistical Analysis
Full Course Description	: a
Couse ID: 403351	Description: Engineering Metallurgy
Full Course Description	: Fe-C thermal equilibrium diagram, carbon steels plain carbon steels, heat treatment of steels, alloy steels, cast-iron, copper and aluminum alloys, experiments on metallographic examination, microstructure of carbon, alloy and stainless steel, heat treatment of steels: hardening, annealing and normalizing, hardenability, testing of steels.
Couse ID: 403361	Description: Industrial Automation
Full Course Description	: a
Couse ID: 403362	Description: Industrial Automation Lab.
Full Course Description	: a
Couse ID: 403411	Description: Facilities Planning
Full Course Description	: Strategic facilities planning, plant location, product, process and schedule design, flow, space and activity relationship, personnel requirements, materials handling, computer-aided-layout, warehouse operations.

**Courses Description** 

College: Engineering	
Department: Industrial En	ngineering
Couse ID: 403412	Description: Time Analysis & Forecasting
Full Course Description:	Steps of forecasting, regression analysis models, exponential smoothing and moving average technique, control therapy concepts in forecasting, on-line and off- line forecasting, technological forecasting and Delphi technique.
Couse ID: 403413	Description: Simulation
Full Course Description:	Probabilistic models, manual simulation, input modelling, simulation modelling, verification and validation of simulation models, output analysis tools for reducing the variance of simulation outputs, applications and case studies.
Couse ID: 403414	Description: Safety Engineering
Full Course Description:	Hazards in workplace, analytical tools of hazards and accidents, probabilistic concepts, safety and health systems, national regulations and requirements, hazard control, safety and health management.
Couse ID: 403421	Description: Manufacturing Systems
Full Course Description:	Mathematical models in manufacturing, models for output, productivity measures, design of flexible manufacturing systems, design of manufacturing cells and assembly system.
Couse ID: 403422	Description: Die Design & Manufacturing
Full Course Description:	Classification of forming dies, main parameters to be considered in die design, sheet metal forming dies (blanking, deep drawing and bending dies), materials used in dies, manufacturing of dies and heat treatment.
Couse ID: 403423	Description: Theory of Metal Forming & Cutting
Full Course Description:	Three dimensional stress and strain systems, Mohr's circle of three-dimensional stress and strain, Levy-Mises relations, slab analysis and upper bound, application to plain strain forging, rod drawing, extrusion and deep drawing, Merchant's theory and application to orthogonal cutting.
Couse ID: 403425	Description: Mechanical Behaviour of Engineering Materials
Full Course Description:	Stress-strain behaviour in tensile and compression tests. The materials behaviour under creep, fatigue, corrosion, wear.
Couse ID: 403432	Description: Quality Management
Full Course Description:	Leadership, customer focus, employee involvement, suppliers partnership, performance measures, tools of TQM, quality assurance systems.
Couse ID: 403433	Description: Decision Analysis
Full Course Description:	Decision under uncertainty, decision under risk, different criteria for decision making, Bayesian decision models, group decision making, computer tools in decision making, sensitivity analysis.
Couse ID: 403434	Description: Total Quality Management
Full Course Description:	а
Couse ID: 403435	Description: Information Systems
Full Course Description:	Concepts of information systems, analytical tools, organization concepts, computer hardware and software, systems design and analysis, computer and communication systems.
Couse ID: 403441	Description: Operations Research (2)
Full Course Description:	Probabilistic and stochastic models used in industrial engineering systems, mark or processes, stochastic processes, queuing and it's applications, discrete and continues processes.

**Courses Description** 

College: Engineering	
Department: Industrial En	gineering
Couse ID: 403451	Description: Industrial Furnaces
Full Course Description:	Melting furnaces, induction furnaces, atmosphere control in melting furnaces, heat treatment furnace part, vacuum energy, efficient furnace and operation, energy saving in furnaces.
Couse ID: 403453	Description: Polymers & Plastic Engineering
Full Course Description:	Raw plastic materials, types of polymer, polymerization techniques, polymer properties, engineering analysis of polymer processing, techniques (extrusion injections and blow molding), film blowing, thermoforming, concepts of mold, die and product design.
Couse ID: 403461	Description: Industrial Automation
Full Course Description:	Introduction to the various technologies used in manufacturing automation, Design for Automation, Analysis of production systems including automated flow times and balancing. Building blocks of automation, Numerical Control and CAD/CAM and CNC programming, Robotics and automated material handling systems. Programmable Logic Controllers (PLC), Laboratory applications.
Couse ID: 403462	Description: Computer Aided Design (CAD)
Full Course Description:	а
Couse ID: 403463	Description: Industrial Engineering Design
Full Course Description:	а
Couse ID: 2403223	Description: Manufacturing Processes Lab.
Full Course Description:	а
Couse ID: 2403241	Description: Engineering Statistics (I)
Full Course Description:	а
Couse ID: 2403252	Description: Properties of Materials Lab.
Full Course Description:	а
Couse ID: 2403311	Description: Human Factors Engineering
Full Course Description:	а
Couse ID: 2403313	Description: Human Factors Engineering Lab
Full Course Description:	а
Couse ID: 2403322	Description: Metrology
Full Course Description:	а
Couse ID: 2403323	Description: Metrology Lab
Full Course Description:	а
Couse ID: 2403331	Description: Cost Analysis
Full Course Description:	а
Couse ID: 2403332	Description: Production Planning and Control
Full Course Description:	а
Couse ID: 2403341	Description: Operations Research (1)
Full Course Description:	а
Couse ID: 2403342	Description: Quality Control
Full Course Description:	а

Page Num: 5

## **Courses Description**

College: Engineering	
Department: Industrial Engin	eering
Couse ID: 2403351	Description: Engineering Metallurgy
Full Course Description: a	
Couse ID: 2403363	Description: Product Development
Full Course Description: a	
Couse ID: 2403411	Description: Facilities Planning
Full Course Description: a	
Couse ID: 2403413	Description: Simulation
Full Course Description: a	
Couse ID: 2403416	Description: Time and Motion Study
Full Course Description: a	
Couse ID: 2403431	Description: Project Management
Full Course Description: a	
Couse ID: 2403433	Description: Decision Analysis
Full Course Description: a	
Couse ID: 2403435	Description: Information Systems
Full Course Description: a	
Couse ID: 2403441	<b>Description:</b> Operations Research (2)
Full Course Description: a	
Couse ID: 3403499	<b>Description:</b> Graduation Project (2)
Full Course Description: a	
Couse ID: 4403221	Description: Manufacturing Processes(1)
Full Course Description:	
Couse ID: 4403241	Description: Engineering Statistics (1)
Full Course Description:	
Couse ID: 4403302	Description: Engineering Economy
Full Course Description:	
Couse ID: 4403311	Description: Human Factors Engineering
Full Course Description:	
Couse ID: 4403312	Description: Product Development
Full Course Description:	
Couse ID: 4403322	Description: Metrology & Measurements
Full Course Description:	
Couse ID: 4403415	Description: CAD / CAM
Full Course Description:	
Couse ID: 4403416	Description: Time and Motion Study
Full Course Description:	
Couse ID: 4403433	Description: Decision Analysis
Full Course Description:	

**Courses Description** 

College: Engineering	
Department: Industrial En	gineering
Couse ID: 4403495	Description: Special Topics
Full Course Description:	
Couse ID: 110403242	Description: Statistics and Probabilities
Full Course Description:	Qualitative and graphical descriptive statistics, probability concepts, discrete and continuous random variables, joint probability distributions covariance and correlations of random variables, sampling and empirical distributions.
Couse ID: 110403302	Description: Engineering Economy
Full Course Description:	а
Couse ID: 110403324	Description: Manufacturing Processes (1)
Full Course Description:	Mechanical behavior and forming of metals different types of mechanical behavior and main factors affecting it, yield criteria, representative stress and representative strain, work due to plastic deformation, classification of forming processes with respect to temperature and strain rate, bulk deformation processes (forging, extrusion, rolling), rod and wire drawing sheet forming processes (blanking and piercing, deep drawing and bending, introduction to high energy rate forming processes).
Couse ID: 110403325	Description: Manufacturing Processes Lab.
Full Course Description:	Experiments concerning basic material processing, operations: casting, pattern design in sand casting, welding, the effect of welding variables in spot welding and arc welding, tensile test for welded specimens, cutting: tool geometry, calculations of cutting forces in turning and drilling processes, metal forming: forging process: open-die, impression-die and closed die forging, drop hammer process, extrusion process, deep drawing process, blanking process.
Couse ID: 110403331	Description: Cost Analysis
Full Course Description:	а
Couse ID: 110403341	Description: Opreation Research (1)
Full Course Description:	Mathematical modeling and operations research, linear programming, Simplex algorithm, duality, transportation and assignment problems, and network models.
Couse ID: 110403363	Description: Engineering Materials and Manufacturing Technology
Full Course Description:	a
Couse ID: 110403400	Description: Practical Training
Full Course Description:	а
<b>Couse ID:</b> 110403426	Description: Manufacturing Processes (2)
Full Course Description:	a
Couse ID: 110403429	Description: Metrology Lab.
Full Course Description:	a
Couse ID: 110403465	Description: Industrial Automation Lab.
Full Course Description:	а
Couse ID: 110403521	Description: Industrial Engineering Design
Full Course Description:	а
Couse ID: 110403531	Description: Human Factors Engineering
Full Course Description:	a

**Courses Description** 

College: Engineering
Department: Industrial Engineering
Couse ID:       110403532       Description:       Human Factors Engineering Lab.
Full Course Description: a
Couse ID:         110403533         Description:         Safety Engineering
Full Course Description: a
Couse ID:         110403534         Description:         Total Quality Management
Full Course Description: a
Couse ID:         110403535         Description:         Product Development
Full Course Description: a
Couse ID:         110403537         Description:         Project Management
Full Course Description: a
Couse ID: 110403541Description: Simulation
Full Course Description: a
Couse ID:         110403542         Description:         Decision Analysis
Full Course Description: a
Couse ID: 110403543Description: Opreation Research (2)
Full Course Description: a
Couse ID: 110403572Description: Graduation Project (2)
Full Course Description: a
Couse ID:         110403581         Description:         Special Topics in Industrial Engineering
Full Course Description: a
Couse ID:         150403400         Description:         Practical Training
Full Course Description: A
Couse ID:         1704031436         Description:         Production Planning & Control
Full Course Description: b
Couse ID:         1704031511         Description:         Facilities Planning
<b>Full Course Description:</b> The course introduces students to the role of facility design in improving performance. Additional topic includes: material flow analysis, personal requirements and material handling, generating and evaluation of layout and location alternatives, and organizing warehouse operations.
Couse ID: 1704031561 Description: CAD/CAM
Full Course Description: J
Couse ID:1704031571Description:Graduation Project (1)
Full Course Description:
Couse ID:2004031400Description:Practical Training
Full Course Description:

**Courses Description** 

College: Engineering	
Department: Industrial En	gineering
Couse ID: 2104031212	Description: Mechanics of materials
Full Course Description:	This course includes the general principle of Statics as introductory. Further, it includes types of loads, structures and supports, axial stress and strain, normal and bending moment diagrams, torsion, bending of beams, compound stresses, combined stresses, shearing stress and strain, Mohr's circle of stress and strain, thin-walled pressure vessels, deflection of simple beams, buckling of columns
Couse ID: 2104031302	Description: Engineering Economy
Full Course Description:	This course covers the main tools for economic analysis that helps in the decision-making process and their effect on taking decisions.
Couse ID: 2104031344	Description: Applied Statistics Engineering
Full Course Description:	Point and interval estimation, the test of hypotheses, the goodness of fit test, contingency tables, design and analysis of single-factor experiments, simple linear regression, and factorial design.
Couse ID: 2104031347	Description: Engineering Design of experiments
Full Course Description:	Introduction to design of experiments and data analysis, statistical theories for designing experiments and data analysis, basic evaluation techniques, comprehensive vision towards product quality and function-ability, and case studies.
Couse ID: 2104031352	Description: Material Science
Full Course Description:	Bonding forces and energies, classification of engineering materials, crystals graphic, imperfection, and strengthening mechanisms diffusion, metallography, thermal equilibrium diagram & relative cost of materials
Couse ID: 2104031353	Description: Material Science Lab
Full Course Description:	Tensile and hardness testing of different materials, impact testing, non-destructive testing microscopic testing, thermal conductivity and electrical resistively of materials.
Couse ID: 2104031427	<b>Description:</b> Design Industrial Systems and machine elements
Full Course Description:	The course provides a framework for use in planning, analyzing and designing industrial systems, such as products, factories, processing plants, operating processes, information systems, and supply chains, in addition to discussing the design of machinery
Couse ID: 2104031428	Description: Meteorology
Full Course Description:	Errors, linear, angular and contour measurements, sine bar, rotating table fits and tolerances, interchangeability, ISO shaft and hole systems of fits and tolerances, thread and gear metrology, surface texture, out of roundness and flatness measurement, sensing devices, transducers, smart sensors and transmitters, force, torque and train measurements, design of load cells, temperature, pressure and flow measurements.
Couse ID: 2104031431	Description: Supply chain management and logistic services
Full Course Description:	This course describes the flow of the material, information, and financing in the multi-stages production supplying networks. Particularly, this course provides the students with the required knowledge and tools for developing, implementing, and enduring the management strategies of supply chain management.
Couse ID: 2104031442	Description: Quality control
Full Course Description:	This course describes statistical concepts and methods, conformance of the products quality characteristics to the specifications, planning control and proofed analysis for process capability, accepted samples criteria, the international standards for quality control, and continuous improvement for quality

**Courses Description** 

College: Engineering	
Department: Industrial Engineering	
Couse ID: 2104031464	Description: Industrial automation and control
Full Course Description:	This course represents the fundamental concepts for different technologies that are used in industrial automation, the basic assumptions in the design that are considered to adapt to automation, automated production systems analysis, different types of sensors, processors, and actuators that are used in the industrial automation, digital machine programming, computer-aided manufacturing, robots and material handling systems, programmable logic controller and some real-life applications that are given in the lab. The introductory of the course includes the necessary knowledge from the field of control.
Couse ID: 2104031509	<b>Description:</b> Statistics and Operations Research LAB
Full Course Description:	
Couse ID: 2104031536	Description: Work Measurement and Analysis
Full Course Description:	In this course, the student will learn time and motion. The tools and the techniques which can be used. The benefits of using time and motion studies.
Couse ID: 2104031538	Description: Work Measurement Lab
Full Course Description:	This lab contains practical experiments and applications on the Work Measurement
Couse ID: 2104031541	Description: Simulation
Full Course Description:	This course covers the probability models, manual stimulation, inputs simulation, simulation models, verifying the simulation models, the analytical outcomes tools for reducing the variability in the outcomes of the simulation, and real-life application of the simulation in the industries.
Couse ID: 2104031542	Description: Simulation Lab
Full Course Description:	This lab contains practical applications in the simulations using one of the most common simulation software.
Couse ID: 2104031544	Description: Decision making analysis
Full Course Description:	This course covers decision making under uncertain conditions and risk, different ways for decision making, Bayesian models for decision making, decision-making tools using a computer, and sensitivity analysis.
Couse ID: 2104031548	Description: Product Design and Development
Full Course Description:	Innovative principles of developing and marketing new products. That includes identifying customer's needs, Product engineering, analyzing the product cycle design for manufacturing.
Couse ID: 2104031551	Description: Creativity and Leadership
Full Course Description:	This course discusses the creative tools in business and industry also, learning through a case study approach which aims to learn students how they will be leaders in solving problems in the academic field.
Couse ID: 2104031553	Description: Management information Systems
Full Course Description:	This course helps students to understand how information systems are used in different sectors to achieve strategic and operational aims.
Couse ID: 2104031554	Description: Nanotechnology and its Applications
Full Course Description:	Introduction to Nanotechnology, Characterization of Nanomaterials, Nanoscale structure in metals, polymers, and ceramics. And applications of nanomaterials.
Couse ID: 2104031557	Description: Marketing Engineering
Full Course Description:	This course focuses on a systematic and analyzed approach to marketing. This approach helps students in determining the options, the suitable procedures, and the estimated returns. Market response models, sector decisions and direction, location decisions, strategic decisions based on market analysis, new product decisions, pricing, and marketing decisions.

**Courses Description** 

College: Engineering	
Department: Industrial En	gineering
Couse ID: 2104031558	Description: Maintenance Management
Full Course Description:	Introduction to maintenance, total production, different maintenance strategies, evaluation of major methodologies of maintenance program development, planning and analysis, examples in decision-making activities, and case studies.
Couse ID: 2104031559	Description: Strategic Planning
Full Course Description:	This course learns students about the nature of strategic planning, development of a strategic plan. Setting vision, mission, and objectives. External evaluation, internal evaluation, analysis and selection of alternatives, strategy implementation and determine the strategic direction for organizations.
<b>Couse ID:</b> 2104031560	Description: Procurement Engineering
Full Course Description:	This course covers the role of procurement in business. Further, this course includes procurement process and financial management.□
Couse ID: 2104031561	Description: CAD/CAM
Full Course Description:	This course presents the basic steps that are taken by managers to improve and develop the product from concept to manufacturing that starts from CAD and ends up with simulation using CAM software. This course allows the student to gain and discover more knowledge to understand how they can use CAD/CAM in industrial applications.
Couse ID: 2104031562	Description: CAD/ CAM Lab
Full Course Description:	This lab contains practical experiments and applications on the CAD/CAM course
Couse ID: 2104031565	Description: six sigma and Lean Manufacturing
Full Course Description:	In this course, students will learn about a famous methodology in the manufacturing and business industries. A project will be assigned under which the students will learn the effective implementation of the methodology.
Couse ID: 2104031574	Description: Quality Management
Full Course Description:	This course contains the fundamental knowledge that is related to the quality management concepts for example; the definition of quality, an overview of the development of quality theories and quality management activities, quality management systems, quality planning, quality monitoring, quality assurance, quality enhancement, comparing the quality versus income and quality versus cost and total quality management.
Couse ID: 2104031577	Description: Reliability Engineering
Full Course Description:	This course gives an introduction about reliability engineering which includes (availability and ability to design) further, this material focuses on practical applications and mathematical concepts.
Couse ID: 2104031582	Description: Industrial Engineering in Healthcare
Full Course Description:	
Couse ID: 2104031583	Description: Polymer Engineering
Full Course Description:	Raw plastic materials, types of polymer, polymerization techniques, polymerproperties, engineering analysis of polymer processing, techniques (extrusion injections and blow molding), film blowing, thermoforming, concepts of mold, die, and product design. Polymeric materials. Polymer microstructures, mechanical, chemical, and physical properties, thermoplastic, thermoset, and elastomeric materials, polymer processing and molds, designing with plastics.