

COURSE DESCRIPTIONS

ELECTRONICS ENGINEERING TECHNOLOGY

ELET 101

CIRCUIT ANALYSIS I - 4 semester hours

F, Sp

AA beginning course in electric circuit analysis with emphasis on direct-current and scientific notation, electrical quantities and scientific notation, electrical methods of analysis, network theorems and capacitance.

Corequisites: **ENGT 100 Introduction to Engineering Technology**
 MATH 120 College Algebra and Trigonometry I

ELET 102

CIRCUIT ANALYSIS II - 4 semester hours

F,Sp

AA beginning course in electric circuit analysis with emphasis on alternating-current magnetic circuits, inductors, sinusoidal waveforms, magnetic circuits, inductors, sinusoidal waveforms, basic parallel networks, ac power, resonance, and three-phase systems.

Prerequisites: **ELET 101 Circuit Analysis I**
 MATH 120 College Algebra and Trigonometry I
Corequisite: **MATH 121 College Algebra and Trigonometry II**

ELET 203

INTRODUCTION TO ELECTRONICS - 4 semester hours

F

An introductory course in solid-state electronic devices and their applications, Zener diodes, the junction transistor, CE, CB, and the SCR and other thyristors, and field-effect transistors.

Prerequisite: **ELET 102 Circuit Analysis II**

ELET 204

ELECTRONIC CIRCUITS - 4 semester hours

Sp

An introductory course in solid-state electronic circuits and their applications. frequency response, power amplifiers, oscillators, applications, power supplies, and voltage regulators.

Prerequisite: **ELET 203 Introduction to Electronics**

ELET 207

DIGITAL CIRCUITS - 4 semester hours

F

An introductory course in digital-circuit concepts, applications, and design. Topi systems and codes, logic gates, Boolean algebra, Karnaugh mapping, combinational logic circuits, sequential logic design, and IC logic families.

Prerequisite: **ELET 102 Circuit Analysis II**

ELET 208

MICROPROCESSORS - 4 semester hours

Sp

Introduction to 16-bit microprocessors with emphasis on programming. Topics include the following: data control, memories, data transmission, addressing modes, subroutines, and introduction to hardware.

Prerequisite: **ELET 207 Digital Circuits or equivalent**

ELET 304

ADVANCED CIRCUIT ANALYSIS - 3 semester hours

Sp

An advanced course in electric circuit analysis. Topics include the following: ac networks, waveforms, differential equations, Laplace transforms and applications, and transfer function.

Prerequisites: ELET 102 Circuit Analysis II
MATH 200 Calculus I

ELET 306

ADVANCED ELECTRONICS - 4 semester hours

F

An advanced course in the design and applications of linear integrated power supply regulators, op-amp characteristics, power supply regulators, op-amp characteristics, single-supply operation, signal

Prerequisites: ELET 204 Electronic Circuits
MATH 200 Calculus I

ELET 309

ADVANCED DIGITAL CIRCUITS - 4 semester hours

Sp

A design course for digital computer circuits using integrated circuit devices. Topics include registers, counters, encoders, multiplexers, arithmetic circuits, D/A and A/D converters, and memory circuits.

Prerequisite: ELET 207 Digital Circuits or equivalent

ELET 399

SPECIAL TOPICS - 3 semester hours

F,Sp

A course which can be designated by the department to cover a class or group of students in lieu of another technical knowledge in a particular area.

ELET 401

ELECTRIC MACHINERY - 3 semester hours

Sp

A course in electric machines designed for students majoring in electronics engineering the following: fundamentals of electromagnetics, dynamo construction, synchronous machines, ideal and practical transformers, polyphase and synchronous machines, ideal and practical single-phase motors.

Prerequisites: ELET 102 Circuit Analysis II
MATH 200 Calculus I

ELET 403

CONTROL SYSTEMS - 3 semester hours

F

A course in control theory and mathematical techniques, transfer functions, block diagrams, analysis of second-order servo systems, stability frequency response analysis, and compensation.

Prerequisite: ELET 304 Advanced Circuit Analysis

ELET 406

COMMUNICATION SYSTEMS - 3 semester hours

Sp

Introduction to the theory and practice of digital communication techniques. Topics included modulation, design and analysis of modulation systems.

Prerequisites: Senior Standing

ELET 408

ADVANCED MICROPROCESSORS I - 4 semester hours

F

An advanced course in microprocessors with emphasis on the hardware of a 16-bit processor. Topics following: introduction to the 8086/8088 microprocessor, arithmetic and logic instructions, instructions, 8086/8088 hardware specifications, memory interfacing, input/output interfacing, instructions, 8086/8088 hardware

Prerequisite: ELET 208 Microprocessors

ELET 409

language.

Prerequisites: MATH 121 College Algebra and Trigonometry II
ENGT 105 Engineering Problem Solving

ENGT 321

ENGINEERING ECONOMY - 3 semester hours

Sp

Study of time value of money and evaluation of alternatives. Study of time value of money and formulas, interest, gradient s, depreciation, rate of return, breakeven an alysis, formulas, interest, gr alternatives and sensitivity analysis.

Prerequisites: MATH 121 College Algebra and Trigonometry II and Junior standing in ENGT program

MECHANICAL ENGINEERING TECHNOLOGY

MCET 102

MACHINES LABORATORY - 1 semester hour

F

Basic hand tools, shop safety procedures; fundamental machine operations of drilling, sawing, milling, turning; inspection tools, gauges, measuring instruments.

Prerequisite: None

MCET 200

STATICS - 3 semester hours

F

Force systems, resultants, and equilibrium; trusses, method of sections; friction; centroids, moments of inertia.

Prerequisites: MATH 121 College Algebra and Trigonometry II
ENGT 100 Introduction to Engineering Technology

MCET 201

STRENGTH OF MATERIALS - 3 semester hours

Sp

Stress and deformation; axial, tensile and compressive stresses, torsion; shear and stress and deformation; axial, tensile and compre and design of beams. Use of computers in beam design is included.

Prerequisite: MCET 200 Statics

MCET 202

STRENGTH OF MATERIALS LAB - 1 semester hour

Sp

Tensile, compressive, torsional, bending, impact, hardness, and tensile, compressive, torsional, bending, impact, hardness, an strain gages; statistical evaluation of data.

Prerequisites: MCET 200 Statics

MCET 102 Machines Lab

Corequisite: MCET 201 Strength of Materials

MCET 301

INTRODUCTION TO THERMODYNAMICS - 3 semester hours

F

An introduction to fundamentals of thermodynamics; including work and heat; first and second laws; proAn introduction to fun gases, gas mixtures; compression and expansion of gas steam tables are covered.

Prerequisites: MATH 200 Calculus I

MCET 305

MANUFACTURING MATERIALS AND PROCESSES - 3 semester hours

Sp

The study of the physical and mechanical properties of various materials as applied to design, processing, and fabrication methods.

Prerequisite: None

MCET 306

MACHINE DESIGN I - 3 semester hours**F**

The design of basic elements used in machines, including machine couplings, belt and chain drives. Design for fatigue strength is included.

Prerequisites: MCET 201 Strength of Materials
DRFT 261 Computer Aided Drafting
MATH 200 Calculus I
ENGT 301 Computer Programming

MCET 307**KINEMATICS OF MACHINES - 3 semester hours**

The study of techniques for the analysis of displacement, velocity, and acceleration graphical kinematics of linkages; introduction to cams.

Prerequisites: DRFT 261 Computer Aided Drafting
MCET 311 Dynamics

MCET 311**DYNAMICS - 3 semester hours****F**

The kinematics and kinetics of particles and rigid bodies; and momentum. Use of computers for problem solving is included.

Prerequisites: MCET 200 Statics
MATH 200 Calculus I

MCET 313**FLUID MECHANICS - 3 semester hours****F**

Properties of fluids; fluid statics and dynamics, including momentum, energy, Bernoulli's fluid machinery, and open channels: study of the siphon etc.

Prerequisites: MCET 200 Statics
MATH 200 Calculus I

MCET 314**FLUID MECHANICS LABORATORY - 1 semester hour****F**

Laboratory demonstrations, experiments, and exercises dealing with and characteristics of fluid machinery.

Corequisite: MCET 313 Fluid Mechanics

MCET 401**APPLIED THERMODYNAMICS - 3 semester hours****Sp**

Study of thermodynamic cycles; includes Carnot, Rankine, turbines and compressors.

Prerequisite: MCET 301 Introduction to Thermodynamics

MCET 403**QUALITY CONTROL - 3 semester hours**

A study of the factors affecting quality during a manufacturing of measurement, lot sampling, and organization.

Prerequisites: ENGT 301 Computer Programming
MATH 200 Calculus I

MCET 404**ENERGY LABORATORY - 1 semester hour****Sp**

A study of heat transfer equipment; shell and tube heat exchangers, energy conversion; calorimeters; internal combustion engines (diesel and Otto cycles).

Corequisite: MCET 401 Applied Thermodynamics

MCET 406

MACHINE DESIGN II - 3 semester hours

AA further development of the principles and technA further development of the principles and techniquA further development of the principles and techniques of machine design. Design projects are included. axles and shafts, bearings, clutches, brakes, gaskets and seals. Design projects are included.

Prerequisite: MCET 306 Machine Design I

MCET 415

INSTRUMENTATION AND CONTROLS - 3 semester hours

Sp

AA study of the basic concepts and principles associated with the operation and useA study of the basic concepts and principles associated with the operation and use of measurement and for the control of measurement and for the control of various properties and reliability of instruments and their role in control systems. measurement and for the control of various properties

Prerequisites: ELET 410 Introduction to Electricity and Electronics

MCET 416

MEASUREMENTS LABORATORY - 1 semester hour

Sp

ExperimentsExperiments are conducted to reinforce and expand on concepts learned in MCET 415. Experiments are conducted to reinforce and expand on concepts learned in MCET 415. electrical and electronic devices used in mechanical measurements; included as various types of circuits, and operational amplifiers. electrical and electronic devices used in mechanical measurements; included as various types of circuits, and operational amplifiers.

Corequisite: MCET 415 Instrumentation and Controls

MCET 420 SENIOR PROJECT - 1 to 4 semester hours

Student will design a project to illustrate basic knowledge and skills in one phaseStudent will design a project to illustrate basic knowledge and skills in one phase. a prototype will be built and tested. Student will design a project to illustrate basic knowledge and skills in one phase. a prototype will be built and tested.

Prerequisite: Senior standing

MCET 421

HYDRAULICS AND PNEUMATICS - 3 semester hours

Sp

FundamentalsFundamentals of hydraulic and pneumatic system design andFundamentals of hydraulic and pneumatic system design and rotary activators, cylinders, pumps, piping and fitting losses. Fundamentals of hydraulic and pneumatic system design and rotary activators, cylinders, pumps, piping and fitting losses.

Prerequisite: MCET 313 Fluid Mechanics

MCET 422

HYDRAULICS AND PNEUMATICS LAB - 1 semester hour

Sp

Selected design problems and projects dealing withSelected design problems and projects dealing with principles and methods discussed in MCET 421. Selected design problems and projects dealing with principles and methods discussed in MCET 421. circuit diagrams, flow charts, and detailed designs; circuits are set up and analyzed. Selected design problems and projects dealing with principles and methods discussed in MCET 421. circuit diagrams, flow charts, and detailed designs; circuits are set up and analyzed.

Corequisite: MCET 421 Hydraulics and Pneumatics

MCET 499

SPECIAL TOPICS IN ENGINEERING TECHNOLOGY -3 semester hours

A course which can be designated by the department to coverA course which can be designated by the department to cover a class or group of students in lieu of another technical elective or as independent study to upgrade a class or group of students in knowledge in a particular area. A course which can be designated by the department to cover a class or group of students in lieu of another technical elective or as independent study to upgrade a class or group of students in knowledge in a particular area.

Prerequisite: Permission of faculty

