

Royal Commission in Jubail
Jubail Industrial College
Curriculum & Quality Assurance



الهيئة الملكية بالجبيل
كلية الجبيل الصناعية
المناهج وضمان الجودة

JIC COURSE CATALOG

2019/2020
(1440H/1441H)

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COURSES OFFERED BY THE ENGLISH LANGUAGE CENTER

ELC 001 English I [10-12-13]

[Quick-links](#)

Pre-requisite: None

ELC001 is a 13-credit-hour course designed for first-semester Preparatory-Year Program (PYP) students. At the successful conclusion of this course students will have attained sufficient English skills to fulfill the criteria for the Common European Framework of Reference for languages (CEFR) Level A2.

Using an integrated approach, students are exposed to all four language skills: reading, writing, listening and speaking, as well as correct form during the grammar activity. Students spend 15 hours each week in the Skills class, using Language Leader, five hour weekly in the Grammar class, and two hours in the CALL lab.

ELC 002 English II (Technical) [10-12-13]

[Quick-links](#)

Pre-requisite: ELC 001

ELC002 is a 13-credit-hour course designed for second-semester Preparatory-Year Program (PYP) students who will be studying technical stream courses at JIC. At the successful conclusion of this course students will have attained sufficient English skills to fulfill the criteria for the Common European Framework of Reference for languages (CEFR) Level B1.

Using an integrated approach, students are exposed to all four language skills: reading, writing, listening and speaking, with a tendency towards technical as well as general topics. Students receive 10 hours per week of general English (Skills), 5 hours of technical English (Tech), 5 hours of focus on accuracy (Grammar) and 2 hours of CALL.

ELC 003 English II (Business) [10-12-13]

[Quick-links](#)

Pre-requisite: ELC 001

ELC003 is a 13-credit-hour course designed for second-semester Preparatory-Year Program (PYP) students who will be studying business stream courses at JIC. At the successful conclusion of this course students will have attained sufficient English skills to fulfill the criteria for the Common European Framework of Reference for languages (CEFR) Level B1.

Using an integrated approach, students are exposed to all four language skills: reading, writing, listening and speaking, with a tendency towards business as well as general topics. Students receive 10 hours per week of general English (Skills), 5 hours of business English (Bus), 5 hours of focus on accuracy (Grammar) and 2 hours of CALL.

ELC 103 English III (Composition) [2-3-3]

[Quick-links](#)

Pre-requisite: ELC 002/ELC 003

The course consolidates and extends writing skills through the performance of a variety of functional tasks. It ranges from guided to free writing, and there is extensive practice in a variety of areas. It encourages students to think for themselves, to observe and interpret, to express their opinions, to justify their ideas and to increase their vocabulary and use of structures. It also gives them the opportunity to practice different verb tenses, moods and voices. They are expected to write independently about a wide range of topics. They are also encouraged to participate in class discussion and to ask freely on any aspect of the language with which they require help. The overall aim of the course is to help students commit to paper what they need to convey in a precise and concise manner, by developing clarity of expression achieved through accuracy of structure and syntax and a widening of vocabulary.

ELC 104 English IV (Communication) [2-3-3]

[Quick-links](#)

Pre-requisite: ELC 103

The course ranges from the conversational and responsive use of spontaneous English in dealing with real-life ad hoc situations, to techniques required in presenting information orally in a way that is meaningful and clear. It gives students the opportunity to practice and expand their communicative competency and to extend the limits of their knowledge of vocabulary and idioms, within the context of oral English. It encourages them to think quickly, to listen, interpret and respond, to express opinions, and to justify their ideas. They are encouraged to participate in class discussion and to ask freely on any aspect of the language with which they require help. The overall aim of the course is to help students

say with confidence whatever they need to convey in a precise and concise manner, by developing clarity of expression achieved through accuracy of structure and syntax and a widening of vocabulary, and through correct pronunciation and the appropriate use of intonation, sentence rhythm and register.

ELC 205 English V (Technical Writing) [2-3-3]

[Quick-links](#)

Pre-requisite: ELC 104

This course enables students to produce organized reports, formal letters, CVs that conform to technical format/style, audience, suitable mechanics, vocabulary, grammar and the use of graphics where appropriate. They will also learn the language and conventions of forms used in the industrial and business environments.

ELC 407 Advanced English [1-3-2]

[Quick-links](#)

Pre-requisite: ELC 205

This course in Advanced English is for students studying for the Bachelor's degree at JIC and aims to hone some of the skills learnt in previous English courses. It focuses particularly on the listening, speaking and writing components of the language. The listening and speaking provide motivating communicative practice, where students are encouraged and expected to be actively involved in the learning process. The writing develops skills by involving students in the stages of planning, writing and improving their work, stimulating their motivation through the use of interesting tasks. The course also provides effective exam training.

COURSES OFFERED BY THE DEPARTMENT OF GENERAL STUDIES

GES 006 Study Skills [1-0-1]

[Quick-links](#)

Pre-requisite: None

This is an online theoretical course, the curriculum designed to make the student knows the rules and regulations of Student Affairs at Jubail Industrial College in addition to the different aspects of university/ college social life, such as setting measurable and realistic goals, determining the objectives through organized work. The course is aim to provide the students with the academic skills and a working knowledge of the concept of plagiarism and provides helpful information about how to avoid it. The course is dealing with the academic skills, basics of learning, characteristics of learning methods, effective study, lectures and follow-up, time management, reading skills and writing skills. This course also dealing with the skills of scientific thinking and motivating the students to use the library.

GES 021 Math I [3 -0-3]

[Quick-links](#)

Pre-requisite: None

It is a theoretical course. It is designed to provide basic and fundamental knowledge of mathematical concepts, required for technical courses. The topics include: The Real Number System, Integer and Rational Number Exponents, Polynomials, Factoring Complex Numbers, linear and absolute value equations, Quadratic Equations & inequalities in one variable, Two dimensional co-ordinate system and graphs, Introduction to Functions, Linear functions, Synthetic division, Remainder Theorem and the Factor Theorem, Zeros of polynomial functions.

GES 022 Math II [4 -0-4]

[Quick-links](#)

Pre-requisite: GES 021 Math I

This is a theoretical course designed to provide basic and fundamental knowledge of mathematical concepts, required for Technical courses. The topics include: Inverse functions, Exponential, Logarithmic functions and their properties, Logarithms and Logarithmic Scales, Exponential and Logarithmic Equations. Trigonometric functions, Graphs of Sine and Cosine functions, Trigonometric Identities, Inverse Trigonometric functions. Parabolas and Ellipses. Systems of linear equations, Gaussian Elimination Method and Algebra of Matrices.

GES 103 Physical Education [0 -2-1]

[Quick-links](#)

Pre-requisite: None

This is a practical course and is designed to provide students with physical fitness and total welfare. In addition, it provides in depth knowledge of sport and its relation with good health. The course also aims to help students utilize their spare time effectively and prepare to cope physically and mentally with the pressures and complexity of the courses and job requirements. The course covers the fundamentals and rules of the following games: Football, Volleyball, Basketball and other activities such as fitness, table tennis and table soccer (football).

GES 112 Statistics [2 -2-3]

[Quick-links](#)

Pre-requisite: GES 022 Math II

This is a theoretical course. This course aims to develop the students understanding of statistical concepts and ability to apply them in their respective streams.

The topics include sampling classification and statistical analysis of data. Describing and presenting a non-tabulated, tabulated set of data through frequency, relative frequency, cumulative frequency distributions and their graphical presentations; measures of central tendency; measures of dispersion; analysis of ordered pairs of data through linear correlation and linear regression; probability; normal distribution, binomial distribution, T- distribution and index numbers.

GES 113 Calculus I [3 -3-4]

[Quick-links](#)

Pre-requisite: GES 022 Math II

This is a theoretical course designed to provide knowledge and educational experience to students in order to solve mathematical problems involved in technical specialty courses. The topics include: Limits and continuity, Differentiation, applications of differentiation, Indeterminate form, L' Hopital rule, Indefinite and Definite integrals with their applications, Numerical integration, Ordinary differential equations of first order and first degree. Modeling with the first order differential equations.

GES 132 Fundamentals of Physics [3-4-4]

[Quick-links](#)

Pre-requisite: None

This is a theoretical and practical course designed to enable students to acquire sufficient knowledge and skills in Physics relevant to their specializations. The course provides Physics concepts and applications in motion and forces, torque, work and energy theorem, electrostatic forces, fields, potentials and energy, magnetism, magnetic forces and fields, DC and AC electric circuit components and characteristics, light nature, reflection and refraction of light. Techniques, skills and modern computerized apparatus necessary to make laboratory measurements possible are adopted. Experiments in mechanics, thermodynamics, electricity and magnetism are made to support the theory and to meet the needs of engineering technology programs as well as to customize students with team work.

GES 151 General Chemistry [2-4-3]

[Quick-links](#)

Pre-requisite: None

This course is a theoretical and practical course. It is designed to provide an introductory knowledge for students who have not had a science course taught in English. The course enables students to learn the states of matter and units of measurements, uncertainty of measurements, atoms, molecules and ions, modern view of the atomic structure, the electronic structure of atoms and related hypothesis, periodic table, stoichiometry (calculations with chemical formulas and equations, types of chemical reaction), solutions (definition, properties and concentrations), solubility and precipitation reactions, red-ox reaction and its implication, chemistry of nonmetals, basic concepts of chemical bonding, saturated and unsaturated hydrocarbons and organic compounds of different functional groups.

The practical components of the course include teaching students awareness of safety regulations, laboratory techniques, and laboratory experiments to develop the students' ability in experimentation, observation, measurements and documentation.

GES 271 Islamic Culture [1-0-1]

[Quick-links](#)

Pre-requisite: None

This is a theoretical course designed to provide knowledge and education on the concepts of language and terminology of the world culture and the ability to differentiate between similar terms used in science and civilization. The course also enriches the students believes that Islam is a general and comprehensive for all human being anywhere and at any time. The topics include: General culture, civilization and science; Islamic culture and civilizations; Faith in Islam, concepts, degrees, importance, sources and characteristics; The family in Islam; Sanctions in Islam; Economic in Islam; The political system in Islam.

عرض المفهوم اللغوي والاصطلاحي لكلمة ثقافة ، التفريق بين الثقافة والعلم ، خطر الخلط بين المثقف والعالم ، مفهوم العقيدة الإسلامية ، التعريف بالفقه الإسلامي ، مقدمة تشمل القواعد و الأصول التي يبنى عليها الفقه الإسلامي ، نظام الإسلام في العبادات ، نظام المعاملات في الإسلام ، النظام القضائي ، نظام الأسرة في الإسلام ، النظام الاقتصادي في الإسلام ، نظام العقوبات في الإسلام ، التحديات المعاصرة، وتشمل : التبشير، الاستشراق ، الاستعمار، التغريب ، العلمنة ، العولمة ، الخاتمة وفيها الاعتصام بالكتاب والسنة .

GES 313 Calculus II [3-3-4]

[Quick-links](#)

Pre-requisite: GES 113 Calculus I

This is a theoretical course designed to provide knowledge and educational experience to students and enables them to acquire sufficient understanding and knowledge in mathematics required in bachelor degree program. The topics include: Functions of two variables, Limits and Continuity, Partial differentiation, Differentiability and Chain Rule, Extrema of Functions of two variables, Beta and Gamma Functions, Multiple Integrals in Cartesian and Polar co-ordinates, Solutions of Ordinary Differential Equations of second order, Laplace Transforms and their applications, Fourier Series & Fourier transforms.

GES 314 Engineering Mathematics [3-3-4]

[Quick-links](#)

Pre-requisite: GES 313 Calculus II

This is a theoretical course designed to provide knowledge and educational experience to students and enables them to acquire sufficient understanding and knowledge in Engineering Mathematics required in bachelor degree program. The topics include: Vectors and their properties, Vector functions, differentiation & integration of vector functions, line integral, surface integral, Green's and Gauss's theorems, Linear Algebra; Rank of a matrix, Inverse of a matrix ,Eigen values & Eigen vectors. LU factorization. Numerical Methods; Finite Difference operators, Difference equations, Newton Raphson iteration Methods, Interpolation and extrapolation, Least square method, Numerical solution of Ordinary Differential equations of first and second order by Runge-Kutta Method. Linear programming, Simplex method.

GES 332 College Physics [3-3-4]

[Quick-links](#)

Pre-requisite: GES 132 Fundamentals of Physics

This course is both theoretical and practical. It provides a technological and educational experience for students and enables them to acquire sufficient understanding and knowledge in physics of oscillations and electromagnetism and develops their physics practical skills toward bachelor degree in their specializations. The main topics include: Oscillations and Waves, Simple Harmonic Oscillators, Damped Simple Harmonic Motion, Forced Oscillations and Resonance. Waves and Particles, Types of Waves, Speed of Waves, The Principles of Superposition, Interference of Waves, Standing Waves and Resonance. Sound Waves, Category of Sound Waves, Speed of Sound, Energy and Power of Sound Waves. Electrostatic, The Electric Field due to an Electric Dipole, A Dipole in an Electric Field, Flux of an Electric Field, Gauss Law. Magnetic Induction, Faraday's and Lenz's Law of Induction, Eddy Current and Displacement Current. Electromagnetic Theory, Maxwell's Equations, Magnetic Materials, Boundary Conditions. Electromagnetic Waves, Speed of Electromagnetic Waves, Energy in Electromagnetic Waves, Sinusoidal and Standing Waves, Electromagnetic Spectrum, Reflection, Refraction and Polarization of Electromagnetic Waves. Physics of Semiconductors, Band theory, Properties of Semiconducting Materials.

GES 371 Ethics in Islam [1-0-1]

[Quick-links](#)

Pre-requisite: GES 271 Islamic Culture

This is a theoretical course designed to provide knowledge and education on the concepts of ethics in Islam and to provide an overview of philosophical schools of thought and its inability to provide an ethical approach of the true happiness of human being.

The course shows that Islamic morals correspond to the observance of people and highlighting its characteristics and how it is relating by revelation heavenly. It is also enabling the student to know types of ethics and its stages of formation, the means to build morals, and then shows the impact and role-criminal legislation to protect morality and that it is not opposed to individual freedoms. The course is then ending by display and study of the most important images of ethics: merciful and modesty, chastity and honesty, integrity and justice, patient and persistence.

عرض مجمل لموقف وعجز المذاهب الفكرية الفلسفية على أن تقدم منهجاً أخلاقياً صحيحاً يسعد البشرية، ثم يبين مقابل ذلك المنهج الأخلاقي الصحيح الذي يتوافق مع فطرة الناس مبرزاً خصائصه ومدى ارتباطه بالوحي السماوي، ثم يقوم بتعداد أنواع الأخلاق ومراحل تكوينها، ووسائل بناءها، ثم يبين أثر ودور التشريع الجنائي لحماية الأخلاق وأن ذلك ليس معارضاً للحريات الفردية. بعد ذلك يختتم بعرض ودراسة صوراً من أهم الأخلاق الحميدة: كالرحمة والحياء، والعفة والصدق، والأمانة والعدل، والحلم والصبر.

COURSES OFFERED BY THE DEPARTMENT OF CHEMICAL AND PROCESS ENGINEERING TECHNOLOGY

CHM 101 Laboratory Techniques [1-3-2]

[Quick links](#)

Pre-requisites: None

Includes laboratory measurement techniques, separation techniques and laboratory automation techniques. Emphasizes on the safe analysis of industrial samples taking into account laboratory safety awareness and applications. Covers various solvent extraction, distillation, filtration, evaporation, crystallization and similar methods including viscosity, specific gravity, pH, melting and boiling points measurements.

CHM 102 Industrial Chemistry Principles I [2-0-2]

[Quick links](#)

Pre-requisite: None

Covers significant figures, conversions/dimensional analysis, scientific notation, conversion factors, stoichiometry, solutions, gas laws and quantum chemistry. Emphasizes chemistry problem-solving, formulae and equations, reactions, bonding, gases, solutions and composition of compounds. Introduces the basic principles of industry chemistry with emphasis on industrial application of chemical principles.

CHM 111 Organic Chemistry I [2-3-3]

[Quick links](#)

Pre-requisite: GES 151 General Chemistry

This course provides the basic chemistry of carbon compounds. At the beginning, the course starts by presenting the different functional groups in organic chemistry and then moves up to the concepts of structure, bonding, and stereochemistry. It then introduces the aliphatic hydrocarbons (alkanes, alkenes, alkynes) and discusses their properties, synthesis and reactivity. Aromatic hydrocarbons (benzene and derivatives) are also described in this course and topics such as their nomenclature, properties, synthesis, reactions, and industrial applications are covered. Alkyl and aryl halides are important precursors for other organic derivatives, such as alcohols and ethers, and therefore their properties, synthesis, and reactions are discussed. Finally, oxygen-containing organic compounds, namely alcohols, phenols, and ethers are covered and the basics of their properties, synthesis, and reactivity are discussed.

CHM 112 Inorganic Chemistry I [2-3-3]

[Quick links](#)

Pre-requisite: GES 151 General Chemistry

This course covers atomic orbitals in wave mechanics and structures of atoms and periodic table, structure and bonding in molecules (Lewis concepts, and Lewis Diagrams) and resonance, VSEPR theory and Molecular Orbital Theory, Molecular Orbital Theory and main groups elements (Hydrogen, Group IA, Group IIA, Group IIIA, Group IV A and Group VA, Group VIA, Group VIIA, and Group VIIIA) their properties and reactions.

CHM 113 Physical Chemistry I [3-3-4]

[Quick links](#)

Pre-requisite: None

This course is designed to introduce the students about classical physical chemistry concepts. Topics of study include first and second laws of thermodynamics, chemical kinetics, thermo chemistry, chemical equilibrium, electrochemistry and properties of gases, liquids, solids and solutions. Laboratory experiments related to the above mentioned topics are also included in the course.

CHM 121 Chemical Engineering Principles [2-0-2]

[Quick links](#)

Pre-requisite: None

This course explains the basic concepts of units and dimensions used in process industries and introduces the concept of process variables, stoichiometry principles and basics of combustion. It prepares the students to formulate and solve material balances on non-reacting chemical process systems and lays the foundation for subsequent courses in thermodynamics, separation process, and kinetics.

CHM 122 Process Equipment [2-2-3]

[Quick links](#)

Pre-requisite: None

The course gives an overview of important process equipment which includes pumps, valves, heat exchangers, steam turbines, boilers, compressors, vessels and storage tanks. It comprises both theoretical and laboratory sessions. The lab session will be based on hands on training & interactive a computer-based training program as well as multimedia programs in the form of videos.

CHM 131 Instrumentation and Process Control [2-2-3]

[Quick links](#)

Pre-requisite: CHM 122 Process Equipment

The course is divided into two parts: theory and practical. The theory aims to set the ground for the student to be familiarized with various instrumentation used in the chemical industry. It also covers the basic fundamentals of process control and control theory. The practical involves laboratory sessions on various control panels such as temperature, pressure, flow and level.

CHM 141 Introduction to Polymer Technology [2-0-2]

[Quick links](#)

Pre-requisite: None

This course provides a general introduction to polymers and covers fields of polymer chemistry, polymer engineering technology, polymer processing and recycling industry. The course provides historical perspective; definitions, classifications and applications of polymers, structure of polymers and introduces polymer processing and recycling. Moreover, this course links polymer industry and production with petrochemical industry which provides the main building blocks of polymers (monomers).

CHM 153 Polymer Materials [2-3-3]

[Quick links](#)

Pre-requisite: CHM 141 Introduction to Polymer Technology

This is a theoretical and practical course designed to enable students to acquire sufficient knowledge and skills in polymer materials. This course starts with an introduction to polymer materials and the polymer industry. The student begins to understand the important properties of polymers compared to other materials. Types of polymeric materials (plastics, elastomers, fibers, adhesives and coatings), major commodity and engineering polymers are covered.

CHM 154 Polymer Science and Engineering [3-3-4]

[Quick links](#)

Pre-requisite: None

This course covers physical and mathematical principles required to solve engineering problems, basic concepts of polymer science and engineering, phenomena of glass transition temperature and crystallization, structure-property relation, and an overview of mechanical, electrical and optical properties.

CHM 155 Polymer Chemistry [3-3-4]

[Quick links](#)

Pre-requisite: GES 151 General Chemistry

This is a theoretical and practical course designed to enable students to acquire sufficient knowledge and skills in polymer chemistry. This course provides an introduction to organic chemistry and the chemistry of polymers which acts as a basis for the understanding of the whole of polymer engineering technology. It begins with basic organic chemistry, basic concepts in polymer chemistry, and reaction types used to produce different polymers. Each major type of polymerization will be covered including addition, condensation, ionic and transition metal catalyzed polymerization.

CHM 201 Organic Chemistry II [3-3-4]

[Quick links](#)

Pre-requisite: CHM 111 Organic Chemistry I

This course provides the insight knowledge of hydrocarbon, oxygen, nitrogen and sulfur containing compounds. The course starts with the chemistry of aldehydes and ketones where greater emphasis is put on their reaction mechanisms, and synthetic methods. Carboxylic acids and their derivatives are also described and topics such nomenclature, properties, synthesis, reactions, and industrial applications are covered. Major classes/groups of carbohydrate and amino acids and their nomenclature, synthetic methods, structural variation are also included in this course.

CHM 202 Analytical Chemistry I [2-3-3]

[Quick links](#)

Pre-requisite: GES 151 General Chemistry

Provides lecture and intensive laboratory treatment of both the theory and practice representative of qualitative chemical measurements. Includes sampling and data handling, volumetric analysis, acid-base equilibria, acid-base titration, titration curves and gravimetric analysis. Emphasizes on the chemistry of analysis, calculations and laboratory techniques of classical and standard methods for the quantitative analysis of industrial samples.

CHM 203 Instrumental Analysis I [2-3-3]

[Quick links](#)

Pre-requisite: CHM 101 Laboratory Techniques

This course introduces the general principles and applications of instrumental analytical techniques. The experiments performed in the laboratory will emphasize hands-on instrument set-up, operation, maintenance, trouble shooting, and method development. Greater emphasis is placed on sample preparation for the analysis, the set up and operation of the instrument and the interpretation of results, optimization, troubleshooting and maintenance of instruments such as Polarimeter, Refractometer, UV/Visible and IR spectrometer and Photometry are covered in this course.

CHM 204 Introduction to Macromolecule Chemistry [2-3-3]

[Quick links](#)

Pre-requisite: CHM 111 Organic Chemistry I

This course serves as an introduction course to the field of macromolecule chemistry. It provides students with general information of the chemical bonding in macromolecules and also the role of macromolecules in living organisms. The course puts emphasis on the natural organic biopolymers such as carbohydrates, lipids, proteins and nucleic acids and also covers topics in synthetic organic polymers and their polymerization reactions such as free-radical and step polymerizations.

CHM 211 Instrumental Analysis II [2-3-3]

[Quick links](#)

Pre-requisite: CHM 203 Instrumental Analysis I

This course introduces the basic theory and instrumentation of chromatographic separation techniques, atomic spectroscopy, mass spectroscopy and thermal analysis. Topics include column theory, methods of qualitative and quantitative analysis, and the application of these techniques to various separation problems. The experiments performed in the laboratory will emphasize hands-on instrument set-up,

operation, maintenance, troubleshooting, and method development. Greater emphasis is placed on sample preparation for the analysis, the setup, operation and the interpretation of results. The optimization, troubleshooting and maintenance of all instruments mentioned in this course is also covered.

CHM 212 Quality Control [2-0-2]

[Quick links](#)

Pre-requisite: None

The course enables students to gain knowledge of quality control concepts and statistical calculations and serves the instructional needs of technology students as well as technical and industrial training objectives, instruction of manufacturing, quality, inspection, purchasing, and product design personnel. This course is divided into seven sections, which include data distribution, probability models, control chart principles, specification and tolerance limits, quality systems and ISO 9000. Moreover, sufficient theory is presented to ensure that students gain a sound understanding of the basic principles of quality control and substantial use of probability and statistical techniques is reduced to simple mathematics or is developed in different forms like tables and charts.

CHM 213 Biochemistry I [2-3-3]

[Quick links](#)

Pre-requisite: CHM 204 Introduction to Macromolecule Chemistry

This course is intended to link the relevance of physical chemistry principles to biochemical processes. This includes the biochemical relevance of pH; application of thermodynamics to biochemistry; chemical equilibrium and kinetics of enzyme-catalyzed reactions; metabolism and the regulation of metabolic processes. In addition to lab experiments, the practical part involves tutorials in which students do assignments and workshops (individually and in groups) that are relevant to the lecture materials.

CHM 214 Analytical Chemistry II [2-3-3]

[Quick links](#)

Pre-requisite: CHM 202 Analytical Chemistry I

This course Provides lecture and intensive laboratory treatment of both the theory and practice of quantitative measurements using the complexometric titrations, redox titration, electrochemical methods of analysis using cells and electrode potentials, reduction-oxidation & potentiometric titrations and titration involving iodine.

CHM 215 INCT Project [0-4-2]

[Quick links](#)

Pre-requisite: None

The INCT Diploma Project allows the students to apply the skills, concepts and ideas learned from the previous levels of the program, by the identification of the project, setting project objectives, gathering information, performing scientific analytical methods, interpretation of results, writing a report and making oral presentation for evaluation. Project management and effective teamwork are emphasized throughout this course.

CHM 216 Technicians Responsibility [1-0-1]

[Quick links](#)

Pre-requisite: None

The course provide the responsibilities of technicians and operators in the industries. The use of control systems instrumentation as well as the importance of team work that will result in good communications is also covered. The content covers information for both technicians and operators which includes; sampling, chemical analysis, plant operation, plant production, safety in the plants as well as safety in the laboratory. The course is designed as a guide that technicians and operators can use to refresh their knowledge regarding their responsibilities and safety which should be followed in the laboratory as well as in the chemical plant. At the end of this course the students will gain knowledge and understand the duties of the operator during the plant production of a process system and the handling of hazardous chemicals.

CHM 218 Analytical Instrumentation [1-3-2]

[Quick links](#)

Pre-requisite: None

This course is specially designed and developed for electrical engineering students. The course is an introductory and devoted to the study of instrumental methods of analysis involving pH and conductivity measurements, UV molecular absorption, infrared spectroscopy, gas chromatography and mass spectroscopy. Greater emphasis is placed on, sample preparation for analysis, the set up and operation of the instrument and the interpretation of results, optimization, troubleshooting and maintenance of all instruments covered in this course.

CHM 221 Computer Applications in Chemical Engineering [0-3-1]

[Quick links](#)

Pre-requisite: MIT 170 Computer Applications

The course will enable students to gain a background in using Microsoft Excel and MATLAB to solve simple to complex chemical engineering problems. The material involves only a practical approach using the two software packages to solve systems of algebraic and differential equations; material and energy balance calculations; chemical composition calculations; linear regression; and VLE data computations.

CHM 222 Industrial Chemical Processes [2-0-2]

[Quick links](#)

Pre-requisite: CHM 111 Organic Chemistry I

The course will enable the student to gain thorough knowledge of several industrial chemical processes and their technology; analyze process flow sheet alternatives for different industries; assess the interconnection of equipment in process flow sheets; and recognize the environmental effects of these different industrial processes.

CHM 223 Transport Processes [3-3-4]

[Quick links](#)

Pre-requisite: GES 132 Fundamentals of Physics

This course covers aspects of fluid mechanics and heat transfer. The fluid mechanics section includes fluid in motion, continuity equation, Bernoulli's equation flow in pipes, Reynold's number pipe fittings, pumps, and compressors. Heat transfer includes heat transfer mechanism, heat transfer through composite walls, radiation heat transfer, heat exchangers, flow patterns, LMTD calculation, heat load and fouling in heat exchanger.

CHM 224 Reaction Kinetics and Reactors [2-3-3]

[Quick links](#)

Pre-requisite: GES 113 Calculus I

This course combines knowledge with hands-on experience, which enables students to learn the following: the reaction mechanism and kinetics, the various industrial reactor types and the design equation that are applicable to these reactors, industrial catalysis and classification. Laboratory experiments and the application of the Excel spreadsheet are used to solve reaction kinetics and reactor design problems.

CHM 225 Chemical Engineering Thermodynamics I [2-2-3]

[Quick links](#)

Pre-requisite: GES 132 Fundamentals of Physics

The course introduces the basic concepts of thermodynamics in relation to the physical and chemical transformations that accompany many industrial processes. It covers the first and second laws of thermodynamics and their applications to heat engines, heat pumps and refrigeration.

CHM 230 Process Plant Safety [2-0-2]

[Quick links](#)

Pre-requisite: MME 103 Industrial Safety and Environment

This course consists of basic knowledge of safety associated with chemical plants. It also introduces the various emergency procedures and safety problems in chemical plants. It is a course which will help students to learn safety considerations of different processes to enable the students to acquire skills to deal with various chemicals and related safety equipment.

CHM 231 Petroleum Refining Technology [2-3-3]

[Quick links](#)

Pre-requisite: CHM 111 Organic Chemistry I

This is a theoretical and practical course designed to enable students to acquire sufficient knowledge to gain thorough knowledge of crude oil and its refining techniques, and some important secondary refining processes such as reforming, cracking, and hydrotreating. This course will also enable the students to perform different lab tests used in the petroleum refining.

CHM 232 Separation Processes I [3-3-4]

[Quick links](#)

Pre-requisite: CHM 223 Transport Processes

This course introduces fundamentals of equilibrium-based unit operations frequently encountered in industry which include distillation and absorption. Distillation covers fractional, vacuum, steam, extractive, and azeotropic operations. The course also covers mixing processes and dimensionless numbers.

CHM 233 Process Plant Simulation [1-3-2]

[Quick links](#)

Pre-requisite: CHM 131 Instrumentation and Process Control

The course will enable students to gain thorough knowledge on a process simulator, a user-friendly computer simulated environment, which mimic real-time chemical plant operations; application of instrumentation and process control background for startup, shut down and troubleshooting operations on different processes using Yokogawa CS3000 Emulated DCS keyboard.

CHM 234 Environmental Pollution Control Engineering [1-2-2]

[Quick links](#)

Pre-requisite: CHM 111 Organic Chemistry I

This course introduces the global aspects of environmental pollution and its social and economic impacts on the ecology. The course gives students an overall description of various engineering control devices used in petroleum and petrochemical industries to reduce and combat air, water and solid pollution. This will enable the students to evaluate and assess potential environmental hazards posed by industries; select appropriate types of pollution control devices among a host of devices available in the market; and familiarize themselves / or become familiar with legislation and acts issued by government and local authorities regarding pollution limits set for industry to follow.

CHM 235 CHET Diploma Project [0-4-2]

[Quick links](#)

Pre-requisite: CHM 131 Instrumentation and Process Control

This course prepares the students to formulate and work with hands-on experience for chemical process system and lays the feedback of foundation for courses in unit operation, process equipment and instrumentation. The students are required to design and fabricate a working model of the process setup and use to test their project range ability for accuracy.

CHM 236 Water and Waste Water Treatment Technology [2-3-3]

[Quick links](#)

Pre-requisite: None

This course covers all the fundamental proficiencies of water treatment, including laboratory testing, hydraulics, mathematics, chemistry, water transmission, disinfection. This course also serves as a highly illustrative reference featuring dozens of handy problem-solving tables that are invaluable for troubleshooting on site, and brief and simplified versions of water fundamental and laboratory tests, supplemented with common problems and possible solutions and mathematical problem-solving tools to help students diagnose problems throughout statistical calculations.

CHM 237 Fundamentals of Corrosion [2-3-3]

[Quick links](#)

Pre-requisite: None

This course provides an understanding of corrosion fundamentals. It highlights problems arising from corrosion in industries. The course explains the basic corrosion mechanisms, types of corrosion, methods for its control and prevention and the various procedures of corrosion monitoring.

CHM 241 Industrial Polymerization [2-3-3]

[Quick links](#)

Pre-requisite: CHM 155 Polymer Chemistry

This is a practical and theoretical course designed for studying polymerization in the industrial setting. The course discusses the kinetics and thermodynamics of polymerization reactions and their effects on industrial scale polymerization. Different reactor types and methods of polymerization are discussed. In addition, different lab experiments and techniques will be acquired during the laboratory work which is related to the concepts explained in the theoretical part.

CHM 242 Polymer Characterization and Testing [2-3-3]

[Quick links](#)

Prerequisite: CHM 141 Introduction to Polymer Technology

This course addresses the different techniques of polymer characterization and testing including data handling. The structural, thermal, mechanical, and chemical properties of polymers are described and the different modern techniques to measure these properties and molecular weight of polymers are discussed.

CHM 244 Polymer Processing I [2-3-3]

[Quick links](#)

Pre-requisite: CHM 154 Polymer Science and Engineering

This course provides an introduction to polymer processing and polymer rheology. It covers the concept of polymer rheology on a simple level and gives a basic introduction into the main types of polymer processing techniques and their respective machineries. It deals with mixing and compounding of polymers and polymer additives. Basic equipment for mixing and compounding will be discussed. The practical aspect of the course will familiarize students with how polymers are processed and the major polymer processing methods.

CHM 251 Polymer Processing II [2-3-3]

[Quick links](#)

Pre-requisite: CHM 244 Polymer Processing I

This course is designed to familiarize students with the main plastic processing techniques for converting polymer raw materials into plastic end products. It involves important plastic processing techniques such as injection molding, compression, blow molding, other molding techniques and a brief discussion of fiber reinforced plastics.

CHM 252 Polymer Engineering and Design [2-2-3]

[Quick links](#)

Pre-requisite: CHM 242 Polymer Characterization and Testing

This course integrates the growing knowledge and experience of the student with some principles of polymer engineering, enabling him to understand how to design and develop commercial applications for polymers, with an emphasis on plastics.

CHM 253 Polymer Project [0-4-2]

[Quick links](#)

Prerequisites: CHM 242 Polymer Characterization and Testing or CHM 244 Polymer Processing I

Diploma Projects are assigned to small groups of students based on their theoretical and practical knowledge acquired during the program. Projects relating to polymer production (from synthesis to process flow diagram, material and equipment design), polymer testing and characterization, polymer processing; polymer blend and composite, etc. are assigned to students. A formal paper will be written and presented at the end of the project.

CHM 290 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

This is intensive on-the-job training program where the student must spend a total of 15 weeks of working in industry. It gives students ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college. It helps them undergo a process of transition from intense class room training to the working environment. Students are evaluated on their performance and are required to give oral presentation and submit a report based on his training/field experience.

CHM 291 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

This is intensive on-the-job training program where the student must spend a total of 15 weeks of working in industry. It gives students ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college. It helps them undergo a process of transition from intense class room training to the working environment. Students are evaluated on their performance and are required to give oral presentation and submit a report based on his training/field experience.

CHM 292 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

This is intensive on-the-job training program where each student spends fifteen weeks of working in industry. It gives students ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college. It helps them undergo a process of transition from intense class room training to the working environment. Students are evaluated on their performance and are required to give oral presentation and submit a report based on his training/field experience.

CHM 321 Process Heat Transfer [2-3-3]

[Quick links](#)

Pre-requisite: CHM 223 Transport Processes

The course combines knowledge of theoretical as well as practical part of heat transfer that enable students to learn the different heat transfer operations and to acquire experience on various heat flow operations and heat transfer equipment. The course also covers the design of different types of heat exchangers, pinch technology and their integration in overall process plant. Further, the course provides thorough concepts on the operations of various heat exchanger types with proper heat utilization and optimization in process plant.

CHM 322 Mass and Energy Balances [3-3-4]

[Quick links](#)

Pre-requisite: CHM 121 Chemical Engineering Principles

The course covers the principles of chemical engineering calculations. A review of the systematic methods of converting units and consistency and dimensional homogeneity of equations is carried out. The major part of the course deals mainly with systematic methods of formulating and solving mass and energy balance equations for a batch or continuous process composed of single and multiple units, single and multiple phases, recycle, bypass and purge streams and phase changes. Tutorial sessions involve application of Unisim software to simulate and solve mass and energy balance problems.

CHM 323 Fluid Flow [2-3-3]

[Quick links](#)

Pre-requisite: CHM 223 Transport Processes

The course provides a fundamental understanding in the properties, types (Newtonian and Non Newtonian) and behavior of fluids, the character of fluids at rest (fluid statics), and the nature of fluids in motion (fluid mechanics or dynamics) and types of flows (Laminar and Turbulent). The course enables the student to gain thorough knowledge in fluid mass and energy balances (Bernoulli equation) and friction in pipe flow and pipe flow problems. The course further enables the student to gain understanding of fluid flow through packed and fluidized beds. Further, the course thoroughly focuses on dimensional analysis and scale up concepts connected with fluid flow. Furthermore, the course emphasizes on centrifugal pump characteristics and compressible flow.

CHM 331 Chemical Process Technology [2-0-2]

[Quick links](#)

Pre-requisite: CHM 222 Industrial Chemical Processes

By the end of the course students will be familiar with basic chemical process technology concepts, chemical process structures and various disciplines that are integrated in chemical processes. Process flow diagrams and various symbols used in flow schemes will also be given emphasis. Students will learn various industrial manufacturing processes such as the production of methanol, MBTE, polyethylene, and polypropylene, synthetic fiber, and mixed fertilizers; and about filters, dryers and various plant utilities.

CHM 332 Chemical Engineering Thermodynamics II [2-3-3]

[Quick links](#)

Pre-requisite: CHM 225 Chemical Engineering Thermodynamics I

This course covers the basic concepts of thermodynamics, and the first and second laws of thermodynamics. The course emphasizes the application of thermodynamic laws and principles to non-flow and flow processes. It also covers the equations of state and generalized correlations as a source of generating thermodynamic properties of pure fluids and mixtures. Finally, thermodynamic analysis of the most important flow processes are carried out for the purpose of calculating their efficiencies.

CHM 421 Chemical Reaction Engineering [2-3-3]

[Quick links](#)

Pre-requisite: CHM 224 Reaction Kinetics and Reactors

This course examines chemical reaction kinetics and interpretation of experimental rate data; relationship between kinetics and mechanisms, conversion, selectivity and yield; isothermal and non-isothermal design of reactors; catalysis and catalytic reactors; and determination of residence time distribution for non-ideal flow reactors; and reactor safety.

CHM 422 Process Control [2-3-3]

[Quick links](#)

Pre-requisite: CHM 131 Instrumentation and Process Control

This course covers the following topics in chemical process control: manual and automatic control, components and mechanism of all control systems, incentives of a process control system, comparison between simple feedback control and advanced control strategies and configurations, block diagram representation of a control system, regulatory and servo control, open loop and closed loop responses, classification of process variables in a control system, developing dynamic models of chemical processes, linearization of dynamic models, Laplace transforms and transfer functions, open loop response of first and second order processes, closed loop response and stability of feedback control systems.

CHM 423 Process Plant Design [3-3-4]

[Quick links](#)

Pre-requisite: CHM 321 Process Heat Transfer and CHM 322 Mass and Energy Balances

This course includes the following topics: BFD, PFD, PID; areas of special concern in process design; materials selection for construction; the use of heuristics in process design; the use of pinch technology; and use of Hysys in process plant simulation, and economics associated with process design.

CHM 424 Process Simulation and Optimization [2-3-3]

[Quick links](#)

Pre-requisite: CHM 322 Mass and Energy Balances

The course will enable the student to gain substantial knowledge and understanding in process modeling and simulation of typical chemical process systems such as single and multistage CSTRs, batch reactors, distillation columns, fluid flow and heating systems. The course will also enable the student to gain thorough knowledge in formulating and solving optimization problems of typical linear and non-linear programming problems with graphical and simplex methods, single variable optimization, and multivariable optimization with equality constraints and least squares curve fitting model to solve over-determined problems. The course will further enable the student to apply MATLAB software package for process simulation and optimization of typical process systems and units.

CHM 431 Process Operation Troubleshooting [3-3-4]

[Quick links](#)

Pre-requisite: CHM 323 Fluid Flow

The course introduces concepts and tools of trouble shooting methodologies to identify and rectify problems and malfunctions in equipment and processes in chemical industries. It covers real examples of trouble shooting problems from industry with special emphasis on distillation column, reactors, pumps, compressors, heat exchangers and furnaces. Part of the course is practical training where students operate a pilot plant in order to identify and solve problems encountered in during operation of the plant.

CHM 432 Senior Project [0-6-2]

[Quick links](#)

Pre-requisite: CHM 421 Chemical Reaction Engineering and CHM 423 Process Plant Design

The course is an application of all basic principles of chemical engineering to the process design of a chosen chemical product. The product may be a valuable intermediate petrochemical that can be processed into finished petrochemicals, an alternative fuel, a thermally stable polymer or a finished product. In the first stages of design, a process concept is developed with the advantages and feasibility of all alternative synthesis routes investigated. Upon deciding on the process description, a flow diagram is developed and material and energy balance calculations are carried out. The results of these calculations are validated by using a process simulation software package. In the following stages of the design, individual pieces of equipment are sized properly according to known standards or heuristics and equipment special features are pointed out. In many cases, the design is supplemented by a layout of equipment together with a complementary HAZOP study showing the main control loops. Finally, process costs are estimated based on equipment sizes and mass flow rates of the raw materials and the economic feasibility of the process judged by determining the rate of return on investment.

CHM 433 Separation Processes II [3-3-4]

[Quick links](#)

Pre-requisite: CHM 232 Separation Processes I

This course introduces binary and multicomponent distillation, liquid-liquid extraction with ternary systems, absorption and stripping, design of multistage multicomponent distillation systems, diffusion and mass transfer models and their applications to continuous contacting separation processes.

CHM 491 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

This is intensive on-the-job training program where the student must spend a total of 15 weeks of working in industry. It gives students ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college. It helps them undergo a process of transition from intense class room training to the working environment. Students are evaluated on their performance and are required to give oral presentation and submit a report based on his training/field experience.

COURSES OFFERED BY THE DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING TECHNOLOGY

EEE 101 Electrical Circuits I [2-3-3]

[Quick links](#)

Pre-requisite: None

This level 1 foundation course introduces students to the fundamental concepts, terminologies and practices used in Electrical Engineering. It explains the laws and theorems related to series and parallel DC circuits. Students are also introduced to basic AC concepts and, the response of reactive elements such as L and C to sinusoidal waveform.

EEE 111 Electrical Machines I [2-3-3]

[Quick links](#)

Pre-requisite: EEE 101 Electrical Circuits I

This is a fundamental module on electrical machines, introducing students to the concepts, principle of operations, construction and applications of DC machines and single-phase transformers. This module provides close insight into the study of electrical machines and drives. Laboratory part of the course is covered through very well designed experiments and futuristic equipment.

EEE 112 Electrical Circuits II [2-3-3]

[Quick links](#)

Pre-requisite: EEE 101 Electrical Circuits I

This is an intermediate level module that extends the subject matter of EEE 101: Electrical Circuits I. It concentrates on AC analysis of resistive, inductive and capacitive circuits. It explains in details the power in single-phase systems, power factor improvement, poly-phase systems and power calculations for three-phase delta and/or Y connected circuits. It also covers RLC resonant circuits and associated effects.

EEE 113 Electronics [3-3-4]

[Quick links](#)

Pre-requisite: EEE 101 Electrical Circuits I

This course combines knowledge with hands-on experience, to enable students to learn about and acquire the necessary skills to deal with analogue and digital devices, such as diodes, transistors, op-amps, logic-gates, combinational and sequential circuits.

EEE 121 Instrumentation & Measurements I [2-3-3]

[Quick links](#)

Pre-requisite: None

This is a fundamental course introducing students the concepts, principles of operations and applications of basic instruments used in measurements and control. It also introduces the basic principles of transducers for measurement and control. This course is a stepping stone for the other specialized subjects.

EEE 131 Analogue Electronics [2-3-3]

[Quick links](#)

Pre-requisite: EEE 101 Electrical Circuits I

This course combines knowledge with hands-on experience, to enable students to learn about & acquire the necessary skills to deal with discrete analogue devices, such as diodes, transistors, FET's and op-amps.

EEE 132 Digital Electronics [2-3-3]

[Quick links](#)

Pre-requisite: EEE 101 Electrical Circuits I

This course combines knowledge with hands-on experience, to enable students to learn the concept and principles of operation of digital electronic building blocks. This includes logic gates, flip flops, counters, registers and displays.

EEE 201 Electrical Machines II [2-3-3]

[Quick links](#)

Pre-requisites: EEE 111 Electrical Machines I, and EEE 112 Electrical Circuits II

This is an advanced course that combines theoretical knowledge of electrical machines with hands-on skills. It extends the subject of EEE 111: Electrical Machines I by introducing students to the concepts, principles of operation, construction, characteristics and applications of auto-transformers, three-phase transformers, single - phase and three - phase induction motors, and synchronous machines.

EEE 202 Electrical Control and Protection I [2-3-3]

[Quick links](#)

Pre-requisite: EEE 111 Electrical Machines I

This course introduces students to the concepts and structure of electromagnetic controls of electrical motors used in industry in the areas of electrical power system. Different motor control circuits used are designed and practiced. The concepts of relays, circuit breakers and their applications are introduced to students. The module also provides a broad study of switching equipment. A control circuit is introduced as a project to apply certain techniques for improving the comprehension and hands-on skills.

EEE 203 Power Electronics [2-3-3]

[Quick links](#)

Pre-requisite: EEE 113 Electronics

This course is designed to provide students with sufficient knowledge and skills in the area of Power Electronics. The course introduces the topics of Semiconductor Switches; Power Diode, Thyristors, Transistors; Uncontrolled and Controlled rectifiers, MOSFET Choppers and Inverters. Practical part of the

course is covered through very well designed experiment and advanced equipment, that further increase the knowledge and hands-on-skill of the students.

EEE 204 Electrical Wiring [2-3-3]

[Quick links](#)

Pre-requisite: EEE 112 Electrical Circuits II

This is a theoretical and practical course designed to enable students to acquire sufficient knowledge and skills in residential, commercial and industrial wiring. The course elaborates on wiring components, wiring tools, services, and calculations related to sizes of conductors using National Electric Code (NEC). Practical part of the course is covered through installing and operating various circuits on wall mounted large wooden boards. Moreover, students will be introduced to the Building Automation System using KNX standard.

EEE 211 Electrical Troubleshooting [2-3-3]

[Quick links](#)

Pre-requisite: EEE 202 Electrical Control and Protection I

This course applies the concept and techniques of troubleshooting to different control and power circuits used in industry. The course includes the concepts of Off and On-line Troubleshooting, Ladder Diagrams, methods and techniques of troubleshooting; Five-Step Approach, a Diagram Programmed Operation for Problem Analysis and Testing Devices. The course enables the students to perform troubleshooting on various motors, analyze problems and propose remedies through state of the art equipment.

EEE 212 Transmission and Distribution of Electrical Energy [2-3-3]

[Quick links](#)

Pre-requisite: EEE 112 Electrical Circuits II

This course provides students with the basic concepts of electrical power system e.g, generation, transmission and distribution. It gives detailed information about the types of power plants, transmission system, types and characteristics of transmission lines, power handling capacity of lines, distribution system, substation layouts, sub-station equipment, medium and low voltage distribution, and methods of feeding distributors. Practical part of the course is covered by very well designed experiments using futuristic equipment.

EEE 213 ELET Project [0-4-2]

[Quick links](#)

Pre-requisites: EEE 201 Electrical Machines II, and EEE 202 Electrical Control and Protection I

This mainly, hands-on skill course provides students with the opportunity to apply previously gained knowledge and skills to build a project and carry out all the necessary steps of construction, troubleshooting, and successful operation, and finally present it in the form of a report.

EEE 217 Electrical and Electronic Principles [1-3-2]

[Quick links](#)

Pre-requisite: None

This course introduces, students from other departments, about the basic electrical concepts, DC and AC signals, circuits, electrical measuring instruments, basic semiconductor devices and the basic operation of some IC's.

EEE 221 Instrumentation & Measurements II [2-3-3]

[Quick links](#)

Pre-requisite: EEE 121 Instrumentation and Measurements I

This course combines knowledge with hands-on experience, to enable students to learn about and acquire the necessary skills (operation and calibration) to deal with differential pressure measurement, transmission and transmitters, control valves and actuators, flow measurement and flow calculations. The study of principles and measurements of physical parameters such as humidity, Density, Viscosity and pH-value is also included.

EEE 222 Electrical Machines and Control [2-3-3]

[Quick links](#)

Pre-requisite: EEE 101 Electrical Circuits I

This course introduces the students to the concepts of electrical machines and control. DC/AC generators and motors are covered. Single and Three-phase transformers are discussed. The course also introduces the students to principles of motor control and motor control circuits.

EEE 223 Industrial Control [2-3-3][Quick links](#)**Pre-requisite: EEE 121 Instrumentation and Measurements I & GES 113: Calculus I**

This course combines knowledge with hands-on experience to enable students to learn about & acquire the necessary skills to deal with elements of basic feedback control system, characteristics of process dynamics, feedback controllers and their tuning. Cascade control, feed-forward, ratio-control and troubleshooting of Control loop are also included.

EEE 224 Introduction to Microprocessor [2-3-3][Quick links](#)**Pre-requisites: EEE 132 Digital Electronics or EEE 113 Electronics**

This course introduces the basic architecture of microprocessor based systems to the students. Which includes both hardware and software components. It uses Assembly-language programming to solve the engineering problems.

EEE 231 Instrumentation System Diagram [0-2-1][Quick links](#)**Pre-requisite: EEE 223 Industrial Control**

This course teaches students to learn, read and interpret complex loop and PID-diagrams. It also explains to students the necessary information/specifications of instruments for ordering/purchasing purposes. It also includes preparing and reading different types of work orders and work permits.

EEE 232 Instrumentation Engineering [2-3-3][Quick links](#)**Pre-requisite: EEE 221 Instrumentation and Measurements II**

This course introduces the students to process instrumentation devices such as sensors and control valves. Operational amplifiers based signal conditioning circuits such as inverting, non-inverting, summing, averaging, differential, V/I, I/V, A/D and D/A converters and filters are included. The principle and characteristics of control valve is also introduced.

EEE 233 Programmable Logic Controllers [2-3-3][Quick links](#)**Pre-requisites: EEE 113 Electronics or EEE 132 Digital Electronics**

This course combines knowledge with hands-on experience, to enable students to learn about & acquire the necessary skills to deal with the various components of PLCs and to design real life industrial applications.

EEE 234 Computer Control I [2-3-3][Quick links](#)**Pre-requisite: EEE 224 Introduction to Microprocessor**

This course combines knowledge with hands-on experience, to enable students to learn about & acquire the necessary skills to deal with personal computers in monitoring and controlling different sensors, transducers and actuators.

EEE 235 ICET Project [0-4-2][Quick links](#)**Pre-requisites: EEE 223 Industrial Controls, and EEE 224 Introduction to Microprocessor**

It is a project-based course in which students have the opportunity to utilize their theoretical knowledge & the practical skills learned in the previous courses, to design, develop and implement Instrumentation and Control based systems.

EEE 290 Co-operative Work Experience [0-40-3][Quick links](#)**Pre-requisite: None**

The cooperative training program involves placing students in employment situations relevant to their academic and technical interests. During this experience students spend a brief period in companies or industries working and receiving relevant training and instruction. It gives them ample opportunities to experience a real-life working environment and enables them to apply some of the skills developed throughout their respective college courses. It helps them undergo a process of transition from intense class room training to the realities of working life outside the classroom. The student gains some practical

work experience before he graduates. He also gains exposure to a wide range of work situations and an opportunity to market himself to a potential employer.

EEE 291 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

The cooperative training program involves placing students in employment situations relevant to their academic and technical interests. During this experience students spend a brief period in companies or industries working and receiving relevant training and instruction. It gives them ample opportunities to experience a real-life working environment and enables them to apply some of the skills developed throughout their respective college courses. It helps them undergo a process of transition from intense class room training to the realities of working life outside the classroom. The student gains some practical work experience before he graduates. He also gains exposure to a wide range of work situations and an opportunity to market himself to a potential employer.

EEE 311 Network Analysis [2-3-3]

[Quick links](#)

Pre-requisites: GES 313 Calculus II, and EEE 112 Electrical Circuits II

This course covers analysis techniques for electrical circuits containing independent and controlled sources. It covers transient response analysis of 1st and 2nd order circuits, magnetically coupled circuits, frequency response analysis, simple passive filter design, Laplace transform, transfer function, Fourier series and two-ports network parameters.

EEE 312 Electric Drive Systems [2-4-3]

[Quick links](#)

Pre-requisites: EEE 201 Electrical Machines II, and EEE 203 Power Electronics

This course covers motor drive selection, modeling of DC machines, DC machine steady state characteristics, phase-controlled DC motor drives, chopper-controlled DC motor drive, modeling of three phase induction machine, induction motor steady state characteristics, phase-controlled induction motor drives, frequency-controlled induction motor drives, voltage source and current source inverter fed induction motor, voltage source inverter (VSI) operation, modulation techniques, voltage/frequency controlled induction motor drives, vector controlled induction motor drives and harmonics. The MATLAB/SIMULINK software is extensively used for the electric motor drive simulation.

EEE 321 Industrial Electronics [2-3-3]

[Quick links](#)

Pre-requisite: EEE 131 Analogue Electronics

This course introduces principles of operations, design and applications of some core areas of electronics being used in industry such as SCR, DIAC, TRIAC, regulators, amplifiers, oscillators, filters, choppers, inverters, sensors, I/O-devices and drives. It explains the principles and designing of the above areas.

EEE 331 Digital System Design [2-3-3]

[Quick links](#)

Pre-requisite: EEE 132 Digital Electronics

The objective of this course is to give the students the theoretical basis & practical skills in modern design of medium size digital systems in various technologies, including standard circuits & Field Programmable Gate Arrays (FPGAs). The design methodology, systematically introduced & used in the course, is based on simulation & synthesis with the hardware description language (VHDL) tools.

EEE 332 Process Instrumentation [2-3-3]

[Quick links](#)

Pre-requisite: EEE 221 Instrumentation and Measurements II

This course discusses different types of sensors employed in the process industry. It also enables the students to have a better understanding of smart technology such as HART and wireless communication in process control. The course is also giving the hands on experience with designing and implementation of different loops in multi-loop controllers.

EEE 401 Electrical Power System I [2-3-3]

[Quick links](#)

Pre-requisites: EEE 212 Trans. and Dist. of Electrical Energy, and EEE 311 Network Analysis

This course provides an introduction to the classical methods and modern techniques in power system analysis with the aid of a personal computer. Topics include: the concepts of complex power,

transmission line parameters, transmission line performance and compensation, system modeling and per-unit analysis, circuit theory as applied to power systems, and load flow analysis.

EEE 402 Digital Control System [2-3-3]

[Quick links](#)

Pre-requisites: *EEE 224 Introduction to Microprocessor, and EEE 421 Control Engineering*

This course presents the analysis and design of discrete time control systems. It starts with z-transform and its properties, and then it covers the open-loop and close-loop discrete systems. The digital controller will be designed at the end of the course with various stability tests. The MATLAB/SIMULINK and LabVIEW will be used with advantage to obtain numerical solutions.

EEE 411 Electrical Control and Protection II [2-3-3]

[Quick links](#)

Pre-requisites: *EEE 202 Electrical Control and Protection I, and EEE 401 Electrical Power System I*

This course explores topics related to power generation system modeling, voltage regulation and reactive power compensation, fundamentals of power systems stability and control, fundamentals of protective relaying, performance of protection components such as relays, and instrument transformers (CT's and VT's), schemes for the protection of generators, transformers, system buses and induction motors. Hands- on applications, using state of the art equipment, will also be completed during this course.

EEE 412 Electrical Power System II [2-3-3]

[Quick links](#)

Pre-requisite: *EEE 401 Electrical Power System I*

This course is the continuation of EEE 401 which provides students with a working knowledge of power system problems and computer techniques used to solve some of these problems. Topics include optimal dispatch of generation, symmetrical three-phase faults, symmetrical components, unsymmetrical faults, technical treatment of the general problem of power system stability and its relevance.

EEE 413 Senior Project [0-6-2]

[Quick links](#)

Pre-requisite: *EEE 401 Electrical Power System I & EEE 312: Electric Drive Systems*

The senior design project is the capstone design experience. The objective of the course is to provide the student an exposure to the design of a specific project and get experience from participating in the project development. It is also to integrate and strengthen students' knowledge acquired throughout the curriculum. An extensive individual or group design or analytical project is performed in consultation with one or more faculty advisors. Students use contemporary engineering computer software in completing the design assignments, write, and present the project.

EEE 421 Control Engineering [2-3-3]

[Quick links](#)

Pre-requisite: *GES 313 Calculus II*

This course applies control theory to design systems with desired behaviors. It focuses on implementation of control systems derived by mathematical modeling of systems of a diverse range using Laplace transform. It describes State variables; time-domain and frequency-domain design and analysis; design of feedback control systems; root locus analysis; stability analysis; Bode & Nyquist analysis techniques etc.

EEE 422 Advanced PLC [2-3-3]

[Quick links](#)

Pre-requisite: *EEE 233 Programmable Logic Controllers & EEE 331 Digital System Design*

This course presents advanced topics in programmable logic controllers. In addition to the use of advanced Control- instructions, Math-instructions and Logical-instructions in designing, it also discusses the state-diagram based design. Interfacing, configuring, operating and trouble-shooting of PLC with prototype-boards and with real-life application of process industry such as PID-controller etc are also included.

EEE 423 Advanced Microprocessors and Microcontrollers [2-3-3]

[Quick links](#)

Pre-requisites: *EEE 224 Introduction to Microprocessor, & EEE 331 Digital System Design*

This course is intended to familiarize students with Microprocessor and Microcontroller features and difference between them. It provides the students with necessary theoretical and practical skills

needed for microcontroller designing, programming, interfacing and implementation of different real world applications with emphasis on devices like LEDs, Relays, Switches, DACs, ADCs, Motors etc.

EEE 431 Computer Control II [2-3-3]

[Quick links](#)

Pre-requisite: EEE 234 Computer Control I

This course combines knowledge with hands-on experience, to enable students to learn the necessary skills to deal with real time control systems. Provide all aspects of PC interfacing and data acquisition systems from design and specification to programming, installation and configuration. The basics of DCS, SCADA and the field bus technology are also included.

EEE 432 Process Control Applications [2-3-3]

[Quick links](#)

Pre-requisites: EEE 233 Programmable Logic Controllers, and EEE 423 Advanced Microprocessors and Microcontrollers

This course introduces the students to some core areas of control application being used in industry such as batch, boiler, SIS, ESD, DCS and advanced controls. It explains the principles and designing of the above systems using international standards.

EEE 433 Senior Project [0-6-2]

[Quick links](#)

Pre-requisites: EEE 321 Industrial Electronics, and EEE 423 Advanced Microprocessors and Microcontrollers

The senior design project is the capstone design experience. The objective of the course is to provide the student an exposure to the design of a specific project and get experience from participating in the project development. It is also to integrate and strengthen students' knowledge acquired throughout the curriculum. An extensive individual or group design or analytical project is performed in consultation with one or more faculty advisors. Students use contemporary engineering computer software in completing the design assignments and, write and present the project.

EEE 490 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

The cooperative training program involves placement of students in industries relevant to their academic and technical interests. During this training the students spend a brief period in companies or industries and receive training in one or more of the following areas; product design and development, system upgrading or design modifications, project planning, reliability assessment, environment and safety, and total quality management. It gives students ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college. Students also get an exposure to a wide range of work situations and an opportunity to market themselves to a potential employer.

EEE 491 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

The cooperative training program involves placement of students in industries relevant to their academic and technical interests. During this training the students spend a brief period in companies or industries and receive training in one or more of the following areas; product design and development, system upgrading or design modifications, project planning, reliability assessment, environment and safety, and total quality management. It gives students ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college. Students also get an exposure to a wide range of work situations and an opportunity to market themselves to a potential employer.

**COURSES OFFERED BY THE DEPARTMENT OF MECHANICAL AND
MANUFACTURING ENGINEERING TECHNOLOGY**

MME 101 Engineering Drawing [0-2-1][Quick links](#)**Pre-requisite: None**

This introductory course in drawing and drafting covers use of instruments, English letter and number construction, geometrical operations, sketching and shape descriptions, orthographic views, orthographic projections and sectional views.

MME 102 Workshop Technology [0-2-1][Quick links](#)**Pre-requisite: None**

This course provides students with basic workshop skills which they may require later in their majors. The students carryout exercises in bench work, sheet metal work and basic mechanical measurements.

MME 103 Industrial Safety and Environment [1-0-1][Quick links](#)**Pre-requisite: None**

This course introduces the concept of health and safety during on-job training or at work and the sources of environmental pollutions. It aims at forming within the students sound attitudes towards safety and environment. Students recognize general safety, mechanical, electrical and chemical hazards, fire safety, the factors influencing environmental pollutions and the regulatory bodies to control them.

MME 104 Manufacturing Processes I [2-6-4][Quick links](#)**Pre-requisite: None**

This course covers theory and practice of common machining and metal-joining operations essential to manufacturing technicians. Topics include conventional lathe operations, gas metal cutting and metal joining using different welding techniques.

MME 105 Introduction to Engineering Materials [1-0-1][Quick links](#)**Pre-requisite: None**

This subject deals with the materials commonly used in various engineering applications and manufacturing processes, differences in commonly used metals, non-metals, polymers, ceramics and alloys.

MME 111 Manufacturing Processes II [2-4-3][Quick links](#)**Pre-requisite: MME 104 Manufacturing Processes I**

This course is primarily concerned with milling and surface grinding by combining theory and practice of metal cutting operations. Additional topics include casting and some metal forming processes.

MME 112 Strength of Materials [2-3-3][Quick links](#)**Pre-requisite: MME 134 Applied Mechanics**

This course covers basic mechanical properties and testing of materials by combining theories with standard tests.

MME 114 Production Technical Drawing [0-3-1][Quick links](#)**Pre-requisite: MME 101 Engineering Drawing**

This course concerns symbols and terminology used in machine drawing. Topics include auxiliary views, machining allowance, surface texture, fits and tolerances.

MME 121 Plant Maintenance [2-2-3][Quick links](#)**Pre-requisite: None**

This course provides basic knowledge and skills required by a mechanical maintenance technician throughout his career.

MME 131 Applied Thermodynamics [2-2-3][Quick links](#)**Pre-requisite: GES 132 Fundamentals of Physics**

This course deals with the conversion of heat into work, laws of thermodynamics relating to air standard cycles, gas laws and steam tables for calculating properties of liquids and vapor.

MME 132 Fluid Mechanics [2-2-3]

[Quick links](#)

Pre-requisite: GES 132 Fundamentals of Physics

This course deals with the laws of fluids at rest and motion. It covers basic fluid properties, energies of flowing fluid, flow measurement in closed and open conduits and basic compressible flow.

MME 133 Computer Aided Drafting [0-3-1]

[Quick links](#)

Pre-requisite: MME 101 Engineering Drawing

This course prepares students to draw various engineering drawings using the computer aided drafting package. Students receive hands-on experience in using the CAD package, using two-dimensional construction commands.

MME 134 Applied Mechanics [1-2-2]

[Quick links](#)

Pre-requisite: GES 132 Fundamentals of Physics

This course is designed to introduce the basic principles of engineering mechanics for study of applied technology. Topics include forces, vectors and resultants, moments and couples, 2-D equilibrium, trusses, friction, centroids and center of gravity, kinematics of rectilinear and angular motion, kinetics, work energy and power, impulse and momentum.

MME 151 Fluid Mechanics & Heat Transfer [2-2-3]

[Quick links](#)

Pre-requisite: GES 132 Fundamentals of Physics

This course is designed for Electrical Engineering students

This course covers basics of fluid mechanics, heat transfer and their laboratory demonstration. Topics in fluid mechanics include physical and transport properties of fluids, fluid pressure, hydrostatics, Bernoulli's theorem, measurement of discharge, losses in pipe flow. Topics in heat transfer include various heat transfer modes and some of their applications.

MME 201 Metallurgy [2-2-3]

[Quick links](#)

Pre-requisite: GES 151 General Chemistry

This course deals with crystalline structure of metals, equilibrium phase diagram, iron-carbon phase diagram, heat treatment processes, ferrous and non-ferrous metals, extraction of iron from ore and steel making processes.

MME 202 Mechanical CAD Applications [0-3-1]

[Quick links](#)

Pre-requisite: MME 114 Production Technical Drawing

This course provides advanced mechanical drawing skills using Computer-Aided Design and Drafting techniques. Standards and codes in drawing machine parts and assembly drawings are also included. Students will use software packages to create and develop mechanical designs in a 3-D environment.

MME 204 Machine Elements [2-2-3]

[Quick links](#)

Pre-requisite: MME 112 Strength of Materials

This course deals with machine elements such as shafts, bearings, keys and couplings, gears, belts, chains and the use of empirical rules in selection of machine elements for specific application.

MME 205 Metrology and Quality Control [1-2-2]

[Quick links](#)

Pre-requisite: MME 102 Workshop Technology

This course deals with techniques and instruments of measurement used in manufacturing activities. Students learn to use in various measuring tools and instrument and apply statistical tools for quality control.

MME 206 Advanced Manufacturing Processes [2-3-3]

[Quick links](#)

Pre-requisite: MME 111 Manufacturing Processes II

This course covers advanced manufacturing processes which include CNC machining, robotics and non-traditional machining. Students are taught CNC programming for milling and turning operations. Students learn basic robotic configuration and programming.

MME 211 Metrology and Quality Control [2-2-3]

[Quick links](#)

Pre-requisite: None

This course deals with techniques and instruments of measurement used in manufacturing activities. Students learn to use various measuring tools and instruments and apply statistical tools for quality control.

MME 212 Production Planning and Control [2-2-3]

[Quick links](#)

Pre-requisite: None

In this course students are taught in establishing, designing, planning, controlling, calculating and running a production system.

MME 213 Welding and Inspection [2-3-3]

[Quick links](#)

Pre-requisites: MME 104 Manufacturing Processes I and MME 201 Metallurgy

This course concerns various welding processes, welded joints, welding symbols, welding metallurgy, nondestructive testing of weldments and qualification of welders and welding operators.

MME 214 MAET Project [0-4-2]

[Quick links](#)

Pre-requisite: MME 112 Strength of Materials and ELC 205 Technical Writing

Students learn to work in groups, select suitable engineering ideas, plan activities, transform ideas into product, write and present the project.

MME 221 Pumping Machinery and Installations [2-3-3]

[Quick links](#)

Pre-requisites: MME 132 Fluid Mechanics

This course is designed to equip students with knowledge and hands-on skills needed to operate and maintain a pump and understand the interaction between the pump and system.

MME 224 Power Plant Operations [1-0-1]

[Quick links](#)

Pre-requisite: None

This course is designed for Electrical Engineering students

This course introduces steam and gas power generation systems. Topics include combustion in boilers, boiler types, boiler operation and control, super-heaters, condensers, cooling towers and feed water treatment. Combined cycle power generation is briefly discussed.

MME 232 Hydraulics and Pneumatics [2-2-3]

[Quick links](#)

Pre-requisite: None

This course introduces students to the functions of various elements that make hydraulic or pneumatic control circuits. Students learn to build the circuits and troubleshoot them for various fault condition scenarios.

MME 233 MMET Project [0-4-2]

[Quick links](#)

Pre-requisite: MME 112 Strength of Materials and ELC 205 Technical Writing

Students learn to work in groups, select suitable engineering ideas, plan activities, transform ideas into product, write and present the project.

MME 235 Industrial Compressors [2-2-3]

[Quick links](#)

Pre-requisite: MME 131 Applied Thermodynamics

This course is designed to equip students with knowledge and hands-on skills needed to operate and maintain compressors.

MME 237 Power Generation Systems [3-4-4]

[Quick links](#)

Pre-requisite: MME 131 Applied Thermodynamics

This course deals with different types of power generation systems, particularly steam power plants, gas power plants, combined cycle power generation and internal combustion engines. It covers combustion, operation and control of boilers, super-heaters, condensers, cooling towers and water

treatment. Students learn to analyze steam and gas power plants. It also deals with the operation, maintenance and troubleshooting of internal combustion engines. Students acquire hands-on skills in selected engine types.

MME 290 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

This is intensive on-the-job training program where each student spends fifteen weeks of working in industry. It gives students ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college. It helps them undergo a process of transition from intense class room training to the working environment. Students are evaluated on their performance and are required to give oral presentation and submit a report based on his training/field experience.

MME 291 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

The cooperative training program involves placement of students in industries relevant to their academic and technical interests. During this training the students spend a brief period in companies or industries to work there and receive training. It gives them ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college. It helps them undergo a process of transition from intense classroom training to the working life outside. The students gain some practical work experience before they graduate. They also get an exposure to a wide range of work situations and an opportunity to market themselves to a potential employer.

MME 321 Machine Drawing [0-3-1]

[Quick links](#)

Pre-requisite: MME 133 Computer Aided Drafting

This course covers the drawing conventions, abbreviations and symbols used in drawings; indication of surface texture; limits, fits and tolerances; screw threads and threaded fasteners; welded joints and assembly drawings. Students are required to make extensive use of computer aided design and drafting packages.

MME 322 Statics [2-3-3]

[Quick links](#)

Pre-requisite: GES 132 Fundamentals of Physics

This course covers the forces and couples; free body diagrams; two and three-dimensional static equilibrium of a particle and rigid bodies; friction; centroids; center of gravity; moments of inertia; analysis of forces in trusses.

MME 323 Materials Science [2-3-3]

[Quick links](#)

Pre-requisite: None

This course covers the crystalline and non-crystalline structure of materials, mechanical behavior of materials, phase diagrams, Fe-C diagram and IT diagram, heat treatment of steels, iron and steel production process and corrosion and degradation of metals. The classifications, properties and applications of: steels, cast iron, nonferrous metals, polymers, ceramics and composite materials will be covered.

MME 331 Dynamics [2-3-3]

[Quick links](#)

Pre-requisite: MME 322 Statics

This course covers the kinematics of particles and rigid bodies in rectilinear and curvilinear motion; kinetics of particles, work and energy.

MME 332 Machine Design I [2-3-3]

[Quick links](#)

Pre-requisite: MME 321 Machine Drawing

This course deals with designing machine elements subjected to static and dynamic loading. It deals with stresses and deformations in machine elements, and prediction of failures under static, cyclic and impact loading. Machine elements such as threaded fasteners, power screws, riveted joints, welded joints, shafts and associated parts are included. This course makes extensive use of design data book in problem solving exercises.

MME 333 Heat Transfer and Heat Exchangers [2-3-3]

[Quick links](#)

Pre-requisite: MME 131 Applied Thermodynamics or CHM 223 Transport Processes

This course presents the analysis of the three heat transfer modes; conduction, convection and radiation and their applications in engineering systems. It presents the steady state and transient conditions, condensation and boiling heat transfer and the design of different types of heat exchangers.

MME 421 Thermal Engineering [2-3-3]

[Quick links](#)

Pre-requisite: MME 131 Applied Thermodynamics

This course covers the analysis of combustion, steam cycles, gas turbine cycles, turbines, combined cycles and refrigeration and air conditioning systems. Full thermal analysis is presented to allow the students to design a combined power plant making full advantage of co-generation.

MME 422 Kinematics and Mechanisms [2-3-3]

[Quick links](#)

Pre-requisite: MME 331 Dynamics

This course covers the study of mechanisms and machine elements. Aspects of the kinematics, statics, and dynamics of various mechanical elements such as linkages, cams, gears, gear trains are studied. Mechanical balancing is also introduced.

MME 423 Machine Design II [2-3-3]

[Quick links](#)

Pre-requisite: MME 332 Machine Design I

This course is continuation of Machine Design I and involves further design of machine elements. It deals with analysis of columns, determination of stresses in cylinders and pressure vessels, design of bearings, gears, springs, clutches and brakes, belt, rope and chain drives.

MME 431 Manufacturing Processes [3-3-4]

[Quick links](#)

Pre-requisite: MME 323 Materials Science

This course covers basic and advanced manufacturing processes comprehensively in theory and practical sessions. The manufacturing processes include (but not limited to) casting, conventional machining: turning and milling, metal forming and joining methods as welding, powder metallurgy, advanced processes that include CNC machining, robotics and non-traditional methods.

MME 432 Senior Project [0-6-2]

[Quick links](#)

Pre-requisite: MME 423 Machine Design II

The senior design project is the capstone design experience. The objective of the course is to provide the student an exposure to the design of a specific project and get experience from participating in the project development. It is also to integrate and strengthen students' knowledge acquired throughout the curriculum. An extensive individual or group design or analytical project is performed in consultation with one or more faculty advisors. Students use contemporary engineering computer software in completing the design assignments and, write and present the project.

MME 433 Maintenance Planning and Management [2-0-2]

[Quick links](#)

Pre-requisite: None

This course presents maintenance as an integrated system that needs to be planned, designed, engineered and controlled using statistical and optimization techniques. Emphasis is on the use of quantitative techniques for operating, controlling and improving maintenance systems.

MME 492 Co-operative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

The cooperative training program involves placement of students in industries relevant to their academic and technical interests. During this training the students spend a period of 15 weeks in companies or industries and receive training in one or more of the following areas; product design and development, system upgrading or design modifications, project planning, reliability assessment, environment and safety, and total quality management. It gives them ample opportunities to experience real working environment and enable them to apply some of the skills they had gained in the college.

NDT 101 Engineering Drawing and Blueprint Reading [0-3-1]

[Quick links](#)

Pre-requisite: None

This introductory course in drawing and drafting covers use of instruments, English letter and number construction, geometrical operations, sketching and shape descriptions, orthographic views, orthographic projection and sectional views. Basic principles of blueprint reading and the techniques of making shop sketches without the use of instruments are also covered.

NDT 102 Manufacturing Processes and NDT [2-3-3]

[Quick links](#)

Pre-requisite: None

The course will introduce to the students the concept of discontinuities and defects in products from manufacturing processes mainly, casting, forging, and welding. Emphasis is placed on types of discontinuities and defects and the probability of their occurrence, the causes and the likely locations.

NDT 111 Visual Testing (VT) [1-3-2]

[Quick links](#)

Pre-requisite: None

This course deals with Visual Testing requirements for detecting, interpreting and evaluating visible surface discontinuities. The primary focus is on welded joints and related discontinuities. The students will perform hands on training in accordance with the approved Visual Testing procedures, and will learn to interpret and evaluate test results against the relevant acceptance criteria and prepare a test report.

NDT 112 Material Science and Metallurgy [3-3-4]

[Quick links](#)

Pre-requisite: NDT 102

This course deals with material science starting with the atom up to crystalline structures of metals, equilibrium phase diagrams, heat treatment and Welding metallurgy; it aims at determining material properties and changes of these properties under the effect of crystal structure, grain size, dislocations, alloying elements and temperature.

NDT 201 Penetrant Testing (PT) [1-3-2]

[Quick links](#)

Pre-requisite: None

This course deals with basic principles of Liquid Penetrant Testing, safety precautions, Liquid Penetrant processing & techniques, Liquid Penetrant Testing methods & selection, Liquid Penetrant Testing equipment, interpretation and evaluation of indications, and Liquid Penetrant process control. Students will prepare a detailed report with reference to test procedures, standards and codes of practice.

NDT 202 Magnetic Particle Testing (MT) [1-3-2]

[Quick links](#)

Pre-requisite: None

This course deals with basic principles of Magnetic Particle Testing, safety precautions, magnetization methods & techniques, magnetization & electric current, magnetic particles and application methods, principles of demagnetization, magnetic testing equipment, types of discontinuities and evaluation techniques, and magnetic testing quality control. Students will prepare a detailed report with reference to test procedures, standards and codes of practice.

NDT 203 Ultrasonic Testing (UT) [2-4-3]

[Quick links](#)

Pre-requisite: EEE 217

This course covers history and development of ultrasonic testing method, principles of the test and the test equipment, importance of calibration. Students are trained to select UT techniques and test settings, equipment calibration, conduct tests, interpret and evaluate test results with reference to standards, and prepare test report.

NDT 211 NDT Codes and Standards [2-0-2]

[Quick links](#)

Pre-requisite: None

This course deals with codes and standards required in nondestructive testing and evaluation. The course evaluates nondestructive examination procedures & acceptance/rejection criteria with reference to international codes & standards. Students are taught on the detection, locating and evaluation of surface & internal discontinuities associated with the inspection of welds & materials.

NDT 212 Eddy Current Testing (ET) [2-4-3]

[Quick links](#)

Pre-requisite: EEE 217

The course deals with principles of eddy current testing, eddy current instrumentation, different types of inspection coils and its applications, setup and equipment calibration, signal analysis and interpretation, preparation of test reports with reference to standard procedure.

NDT 213 Radiographic Testing (RT) [2-4-3]

[Quick links](#)

Pre-requisite: None

This course provides an understanding of the principles of radiation formation and imaging, operation and testing, specific applications, interpretation and evaluation of test results. Radiation safety regulations, measures and precautions when dealing with X-Ray generators & radioactive materials, radiation hazards, radiation shielding and detection will also be taught. Students are trained to interpret and evaluate test results with reference to standards, and prepare test report.

NDT 214 Advanced NDT-PAUT and TOFD [2-4-3]

[Quick links](#)

Pre-requisite: NDT 203

This course will introduce to the students the concept of Phased Array Ultrasonic Technology (PAUT) and the various instrumentation for its application. The course will also cover principle of Time of Flight Diffraction (TOFD), its advantages and limitations, applications of the technique in data acquisition, processing and analysis. Students will learn to calibrate and set up equipment, locate and evaluate flaws, analyze scan data/defects and generate reports.

NDT 215 NDTE Project [0-4-2]

[Quick links](#)

Pre-requisite: NDT 203

Individual or group projects to enable students to apply knowledge and skills learned in the earlier courses; conception of a project; theoretical analysis; selection of method(s) appropriate for the material(s); testing and inspection; evaluation of results; formal report on the project.

NDT 290 Cooperative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

An intensive on-the-job training program where the student spends at least fifteen weeks working in various plant facilities of the local petroleum, chemical/petrochemical or allied industry that involves the application of NDT methods for inspection and evaluation. The student produces a formal report and gives an oral presentation based on his training/field experience.

COURSES OFFERED BY THE DEPARTMENT OF MANAGEMENT AND INFORMATION TECHNOLOGY

MIT 012 Introduction To Computer [0-1-1]

[Quick links](#)

Pre-requisite: None

This course enables prep-year students to become familiar with modern computer hardware and software. It introduces them to basic concepts of computing, including the widely used operating system and application package for word processing. This course is currently offered in e-Learning mode. Students can access the modules online and are assessed weekly.

MIT 101 Management Theory and Practice [3-0-3]

[Quick links](#)

Pre-requisite: None

This basic management course is designed to provide students across the MIT majors with a broad understanding of fundamental management principles and functions including planning, organizing, staffing, leading, and controlling to help their studies of all related courses in marketing, accounting, and office management majors. It will also provide a strong basis of understanding many management related courses, including personnel administration, office management, organizational behavior and ethics, marketing management, managerial accounting, and operations management.

MIT 102 Elementary Arabic Typing [0-3-1]

[Quick links](#)

Pre-requisite: None

This course is an introductory course for typing. It involves learning to type by touch method of Typing. Student practice exercises using "Typing Tutor Program" in order to build and develop keyboarding skills. This course emphasizes a great degree of accuracy and speed. Students learn the scientific method of keyboarding alphabetical, numerical and special keys. Students are targeted to type a minimum speed of (20 CWPM).

MIT 111 Office Management [3-0-3]

[Quick links](#)

Pre-requisite: MIT 101 Management Theory and Practice

The course deals with the study of administrative principles, procedures, and technological competencies governing the modern office environment. It provides students with the knowledge, skills and proper attitudes to function effectively within a modern office environment. This is to prepare them for their future employment opportunities by equipping them with the technical and professional skills to perform effectively as an administrative assistant within an organization.

MIT 112 Elementary English Typing [0-3-1]

[Quick links](#)

Pre-requisite: None

This course is an introductory course for typing. It involves learning to type by the touch method. Practice exercises using "typing tutor program" are done in order to build and develop keyboarding, speed and accuracy, and correct typing techniques. Students are targeted to type minimum speed of (20 correct words per minute - CWPM).

MIT 113 Arabic Word Processing I [0-2-1]

[Quick links](#)

Pre-requisite: MIT 102 Elementary Arabic Typing

In the developing world of technology, the computer plays a very important role in almost all organization. To increase the quality and efficiency of the work all most all organizations are migrating towards the work on the computer from manual recordings. By keeping the above developments in the mind, this course is designed in such a way that the person who does this course will come to know the basic ways in which the document can be designed and formatted. He will also come to know how to present information in a meaningful way using Microsoft word application program.

MIT 114 Arabic Business Correspondence [2-2-3]

[Quick links](#)

Pre-requisite: MIT 102 Elementary Arabic Typing

This introductory course is aimed at developing transcription skills from dictated written or typed notes. The course emphasizes spelling, punctuation and sentence structure; in addition, the course will cover the conventions of inter-company correspondence in Arabic for both governmental letter and business letters.

MIT 121 Principles of Marketing [3-0-3]

[Quick links](#)

Pre-requisite: None

The course is designed to provide students with a broad understanding of today's marketing concepts about creating customer value and building profitable customer relationships. The course starts with an understanding customer needs and wants, customer groups and segments based on their characteristics, deciding on what target markets and what products and brands the organization can advertise and promote with the adequate blending of price, product, place, and promotion mixes to reach, win, keep and eventually grow targeted consumers. In order to deliver these board understanding the course will cover the fundamental concepts of marketing, marketing mix, actors and forces in marketing, consumer behavior, marketing communications, marketing channels, marketing information systems and direct and online marketing in building better customer relationships.

MIT 131 Marketing Management [3-0-3]
Pre-requisite: MIT 121 Principles of Marketing

[Quick links](#)

The course is designed to enhance students' understanding of marketing principles, knowledge of marketing management approaches in order to advance their skills in using knowledge of marketing management and marketing strategies practiced by successful marketing companies and organizations. Therefore the course is organized to provide a theoretical and practical understanding of marketing management. It includes the study of strategic planning and the marketing management process which is vital to satisfying consumer needs and wants in the market place. It will also focus on key aspects of international marketing.

MIT 132 Principles of Selling [2-3-3]

[Quick links](#)

Pre-requisite: None

The course is designed to provide students with the knowledge and understanding of selling processes, techniques, and skills. It will focus on understanding buyer behavior, the importance of customer relationship strategy and developing an understanding of communicating and negotiating skills, converting features into benefits, and business to business sales presentation skills.

MIT 141 Accounting I [2-2-3]

[Quick links](#)

Pre-requisite: None

This course introduces the student's fundamental principles of accounting. This explains the purpose, uses, and users of accounting. Students are exposed to basic steps of the accounting cycle that includes the preparation of a general journal, ledger accounts, and trial balance. It discusses the concept of the double-entry system through rules for debit and credit. The course provides a sound understanding of various financial items to be included in the Income Statement and Balance Sheet.

MIT 142 Principles of Economics [3-0-3]

[Quick links](#)

Pre-requisite: None

The course is designed to introduce the student to the basic ideas in the subject of economics. It deals with basic economic principles that help them understand the process of decision making by individuals and societies. The fundamental economic activities of production, distribution, exchange, and consumption at both the micro and macro level are being analyzed to make impressions upon the students the idea that all business activity occurs in an economic environment (macroeconomics) and all business decisions need to be analyzed in terms of their impact on the profitability as well as the competitive positioning of the firm (microeconomics).

MIT 152 Cost Accounting [2-2-3]

[Quick links](#)

Pre-requisite: MIT 141 Accounting I

This course is concerned with the studying of the principles of cost accounting and their applications within manufacturing business organizations. The first part of this course deals with the cost behavior and classifications as well as the accounting of direct materials, direct labor, and overhead costs. The second part examines the main approaches in reporting, listing and preparing production costs. This part consists of the classifications and listing of both marginal and total costing besides the methods of absorption of overhead cost. The last part of this course is concerned with different types of costs, such as job costing, contract and service costing and process costing.

MIT 153 Introduction to Finance [2-2-3]

[Quick links](#)

Pre-requisite: MIT 141 Accounting I

This course serves as a foundation course in the area of finance. The course is designed to familiarize the students with the theoretical underpinnings of modern finance as well as the industry practices in the area of corporate finance. The earlier part of the course provides an overview of finance and focuses on analyzing financial statements while the latter part focuses on discounted cash flow analysis and bond financing.

MIT 161 Computer Systems Architecture [2-1-2]

[Quick links](#)

Pre-requisite: MIT 012 Introduction to Computer

This fundamental course introduces the students to the theoretical concepts of the hardware architecture of a computer system. It helps the students to understand how computer hardware works, functions and how the various hardware components are interconnected and integrated together. The modern computer system architecture and technologies are discussed and explained in detail.

MIT 162 End-User Applications [2-3-3]

[Quick links](#)

Pre-requisite: MIT 012 Introduction to Computer

This course is designed for the students on the IT specialization track. It covers the concepts of IT, Word processing, Spreadsheet, Databases, Presentation, Information, and Communication.

MIT 163 Programming Concepts [1-3-2]

[Quick links](#)

Pre-requisite: MIT 012 Introduction to Computer

The course provides students with an understanding of the main programming concepts using high-level computer language. The students will gain practical experience in developing programs. They will be introduced to modern programming concepts such as Object-Oriented programming.

MIT 164 Keyboarding [0-3-1]

[Quick links](#)

Pre-requisite: None

This introductory course involves learning to touch type. Students will learn to master the basic keyboarding skills with correct posture. Practical exercises are done in order to develop speed, accuracy and correct typing techniques. The minimum speed is set at 20 words per minute.

MIT 169 PC Operating Systems [0-3-1]

[Quick links](#)

Pre-requisite: None

This course is to enable students to learn the basics of computer, hardware, software, and understand the functions and familiarize the use of operating systems.

MIT 170 Computer Applications [0-2-1]

[Quick links](#)

Pre-requisite: MIT 012 Introduction to Computer

This course is designed for the students of both business and engineering disciplines. It covers basic information technology (IT) concepts and focuses on developing skills in advanced features of word processing and spreadsheet applications.

MIT 171 Data Communication and Networks [2-3-3]

[Quick links](#)

Pre-requisite: None

To introduce the concepts of Data Communication and Networking. Provide essential knowledge of different types of networks and equipment. Familiarize with LAN, MAN and WAN technologies.

MIT 172 Relational Database Concepts and Design [1-3-2]

[Quick links](#)

Pre-requisite: MIT 162 End-user Applications

This course provides an understanding of modern relational database design and modeling techniques. Develop Windows-based database applications. Use MS Access to save and manipulate data using SQL Queries.

MIT 173 PC Building and Maintenance [0-3-1]

[Quick links](#)

Pre-requisite: MIT161 Computer Systems Architecture

This course provides hands-on training on assembling, disassembling, maintaining and troubleshooting a personal computer, associating peripherals, configuration, and optimization, upgrading and repairing components from the perspective of a PC technician. It develops critical thinking and troubleshooting skills using special techniques to identify, troubleshoot and maintain the sources of basic hardware problems. This course helps the students to prepare for professional certifications.

MIT 174 Multimedia and Web Design [1-3-2]

[Quick links](#)

Pre-requisite: MIT 162 End-user Applications

To provide students with hands-on-experience of graphics design and animation using Photoshop and Flash program. Create eye-catching animation and graphics. This course also provides students with an understanding of the Web technologies and tools to enhance a Web presence. The use of presentation of information in the design of professional Web contents.

MIT 175 Soft Skills [3-0-3]

[Quick links](#)

Pre-requisite: None

This course focuses on thinking skills, the difference between critical and creative thinking, the decision-making process, problem-solving mechanism, and keys to effective time management.

MIT 180 E-Communication [0-3-1]

[Quick links](#)

Pre-requisite: MIT 169 PC Operating Systems

This is an introductory course to the concepts, methodologies, and practice of electronic communication, which familiarizes the students with the electronic transmission of information using computers and other electronic communication tools. It demonstrates how modern technologies enable them to enhance workplace communication and create professional business presentations.

MIT 201 Office Automation [3-0-3]

[Quick links](#)

Pre-requisite: MIT 101 Management Theory and Practice

This course is designed for the students to explore the concepts of office automation and to provide them the knowledge of the basic components of office automation, which will enable them to handle an array of office tasks that involves these components. Students will have the opportunity to practice how to plan, identify, organize, coordinate, analyze, and implement office automation systems including the selection of appropriate technology, hardware, software, communication equipment, and training human resources. The course also covers the administrative and technical concepts of the transformation process to office automation and the significance of the human impact during this process.

MIT 202 Intermediate Arabic Typing [0-4-2]

[Quick links](#)

Pre-requisite: MIT 102 Elementary Arabic Typing

This course is a continuation of MIT 102 and focuses on developing speed and a greater degree of accuracy. The course brings the student's basic typing skills up to an intermediate level. It includes practice exercises covering letters, tables, business statistical forms, manuscripts, and legal forms. Students will have a minimum typing speed of 27 CWPM and a maximum of 45 CWPM.

MIT 203 Organizational Behavior and Ethics [2-0-2]

[Quick links](#)

Pre-requisite: ELC 103 English III (Composition)

The course is designed to provide students with an understanding and awareness of the various factors that influence individual and group behavior within organizations. It also explores the ethical aspects of decision-making and behavior in the workplace. The field of organizational behavior derives many concepts and methods from the behavioral and social sciences such as psychology, sociology, social psychology, and anthropology. In the workplace today, a good understanding of the theory of human relations in organizations is essential. Some contemporary organizational issues include individual and group dynamics, motivation, leadership, organizational communication process, conflicts, power, and organizational politics.

MIT 204 Arabic Word Processing II [0-2-1]

[Quick links](#)

Pre-requisite: MIT 113 Arabic Word Processing I

This course takes the student to the final level of Arabic word processing skill that he is expected to achieve during his specialization years. The finer points of word processing are continued in this course. It requires students to produce entire documents using word processing. Subject materials include tables, charts, and reports. Special emphasis will be placed on editing and correction skill. Preparation

of presentation, using databases, graphics and text will sharpen editing skills. Upon completion of this course, a student will have mastered word processing skills.

MIT 205 English Word Processing I [0-2-1]

[Quick links](#)

Pre-requisite: MIT 112 Elementary English Typing

This course introduces the students to the basics of English word processing functions including entering, formatting, editing, moving, saving, printing and retrieving text as well as spell-checking and correcting errors. Additional features covered include page-numbering, headers, footers, footnotes, endnotes, and table manipulation as well as other features and techniques that enhance and simplify the creation of documents.

MIT 206 Personnel Administration [3-0-3]

[Quick links](#)

Pre-requisite: MIT 101 Management Theory and Practice

This course is designed to provide students with the knowledge and skills involved in managing people in organizations. It covers the main functions and activities of personnel administration, which includes human resource planning, recruitment and selection, training and development, performance appraisal, reward and compensation management, and motivation.

MIT 211 Practical Office Management [2-2-3]

[Quick links](#)

Pre-requisite: MIT 111 Office Management

This is a practical oriented course, which consolidates the skills and competencies learned in previous courses. It further builds upon the skills at intermediate and graduate level required for individual and teamwork, basic office skills, and accountability. The focus is on on-the-job training in a simulated office environment setting focusing more and more on the latest development in a modern office environment.

MIT 212 Intermediate English Typing [0-4-2]

[Quick links](#)

Pre-requisite: MIT 112 Elementary English Typing

This course is a continuation of MIT 112 (Elementary English Typing) and focuses on developing speed and a greater degree of accuracy. The course brings the student's basic typing skills up to an intermediate level. It includes practice exercises covering: letters; tables; business and statistical forms; manuscripts and legal forms. Students are targeted to type minimum speed of (27 correct words per minute - CWPM).

MIT 213 Arabic Spreadsheet [0-2-1]

[Quick links](#)

Pre-requisite: None

This course provides students a practical and theoretical knowledge of Arabic electronic spreadsheet. Topics for this course include mastering the worksheets, creating a database and producing a graphical presentation. Students are also expected to utilize the formula and other features for calculations and numerical data analysis. The user interface language is Arabic.

MIT 214 English Spreadsheet [0-2-1]

[Quick links](#)

Pre-requisite: None

This course provides a basic understanding of Excel, Microsoft's powerful spreadsheet application program. Topics include the Excel environment, entering and editing data, using simple and complex formulas, using functions, formatting text and numbers, working with multiple worksheets, creating charts and graphics, managing databases, and printing spreadsheets. This course will give student hands-on experience in using the MS-Excel program for doing the office related activities like accounting, budgeting, inventory management, bookkeeping and generating financial reports.

MIT 215 Management Information System [3-0-3]

[Quick links](#)

Pre-requisite: None

Managers at all levels of an organization need to know how information systems (IS) can make businesses more competitive and efficient. This course provides an introduction to information systems for business and management. It is designed to familiarize students with organizational and managerial foundations of systems, the technical foundation for understanding information systems, the role of information systems in enhancing business processes and management decision making across the enterprise, and the process of building and managing systems in organizations. The course will focus on topics such as Management of the Digital Firm, Internet and Internet Technology, the Electronic Business and Electronic Commerce, the Information Technology (IT) Infrastructure, the Wireless Technology, and the Enterprise Applications. The course will provide students with information systems knowledge that is essential for creating successful and competitive firms.

MIT 216 English Word Processing II [0-2-1]

[Quick links](#)

Pre-requisite: MIT 205 English Word Processing I

This course prepares students in producing advanced document outputs to sophisticated mail merges and desktop published newsletters using advanced word processing features. Students also acquire knowledge in using built-in templates for creating common documents such as memos, letters, resumes, etc.

MIT 217 Business English Correspondence [2-2-3]

[Quick links](#)

Pre-requisite: ELC 205 Technical Writing

This course mainly concerned with the up-to-date knowledge of business and community correspondence needs. The aim is to equip the learner with the requisite skills and capability so that they are able to transform themselves into competent and effective communicator in the business world. It adopts a variety of skills and methodology in order to ensure that learners acquire knowledge in the fundamentals of communication as well as attains specific skills of how to devise appropriate, often, appealing means of communication such as sales and promotion letters, letter of inquiry, letter of credit, meeting notice, agenda and minutes of a meeting. It also strengthens skills in preparing community correspondence such as thank you letters, letter of appreciation, business and private invitations, job application letters, and resumes/CV.

MIT 221 Marketing Communication [2-3-3]

[Quick links](#)

Pre-requisite: MIT 121 Principles of Marketing

The course will introduce students to the critical role played by advertising and promotion in the marketing activities of an organization. All the promotion mix tools are considered and students will be able to develop an integrated marketing and sales communications and promotion plans by using their acquired skills and understanding of these communication tools.

MIT 222 Retail Sales and Marketing [3-0-3]

[Quick links](#)

Pre-requisite: MIT 132 Principles of Selling

The course will develop students' understanding of the role of marketing in retailing and will also cover all major aspects of retail selling. Topics covered include the environment of retailing, retail buyer behavior, the marketing mix for retailing, retail selling, retail marketing planning, and online retail marketing, retail location, retailing theories and principles, competitive nature and growth of 'brick' (supermarket) vs. 'click' (online shopping) based retailing.

MIT 223 Consumer Behavior [3-0-3]

[Quick links](#)

Pre-requisite: MIT 121 Principles of Marketing

The course is designed to provide students with an understanding of theories and applications relating to consumer behavior. It will emphasize that effective marketing strategies require an understanding of consumer needs and want. Personal, social, cultural, psychological and situational influences will be examined along with their marketing and sales implications in terms of consumer behavior principles and processes.

MIT 224 Services Marketing [3-0-3]

[Quick links](#)

Pre-requisite: MIT 131 Marketing Management

The course recognizes the vital role that Services Marketing play in the Saudi economy and in other economies of the world. The main theme of the course is that service organizations like banks, restaurants, hotels, hospitals, educational institutions, professional and community-based service organizations, require a distinct approach to marketing strategy both in their planning, organizing and implementation stages. The course will expand on concepts of general marketing theories and tools studied in the Principles of Marketing.

MIT 225 Public Relations [3-0-3]

[Quick links](#)

Pre-requisite: None

Public relations are an integral part of communications and play a vital role in the overall effort to achieve a firm's objectives. Public relation is a course that stresses upon developing better relations with not only the customers but also with the community, government, politicians, and all groups that have some stake in the affairs of the business, like the distributors, and employees, among others. The goal of PR is to achieve better relations with all these groups through factual and correct information. Public relation teaches the monetary and economic benefits of coordinating communication activities around all these groups. The most challenging aspect of the course is the teaching of communication skills used in contemporary media channels and to draw publics' attention to achieve targeted objectives and build organizations' image. Public relation develops synergies in the overall marketing activities of the firm.

MIT 231 Industrial Sales and Marketing [3-0-3]

[Quick links](#)

Pre-requisite: MIT 131 Marketing Management

This course will focus on marketing and sales-related issues in business to business (B to B) environment involving industrial enterprises and organizations. The course covers issues of marketing and sales-related challenges faced by industrial and organizational customers. This will include studying marketing practices unique to the marketing of goods and services to industrial customers, by using marketing tools such as segmentation and targeting, relationship strategies, supply chain management, business logistics management and developing organizational customer fit strategies. The nature of industrial marketing and selling also highlights the understanding of industrial buyer behavior, industrial services, industrial marketing communications, pricing strategies and building long term relationships with industrial and organizational customers.

MIT 232 Marketing Research [2-3-3]

[Quick links](#)

Pre-requisites: GES 112 Statistics and MIT 214 English Spreadsheet

This course examines the process of collecting and analyzing data to support marketing decisions. It emphasizes the process of designing marketing research which includes marketing and selling related problem definition, questionnaire design, sampling, collection of data, and the analysis, interpretation, and presentation of secondary and primary data using Excel and SPSS software.

MIT 241 Accounting II [2-2-3]

[Quick links](#)

Pre-requisite: MIT 141 Accounting I

This is the second of the two accounting courses. The course aims to develop and strengthen basic accounting concepts and takes students further to advance topics of financial accounting. This explains the importance and purpose of internal control. The students will be exposed to accounting for cash, receivables, fixed assets, and current liabilities including payroll.

It provides a sound understanding of accounting for partnership and corporate businesses. The students will learn to account for partnership and corporate businesses with special emphasis on stockholders' equity items of corporate balance sheet.

MIT 244 Business Law [2-0-2]

[Quick links](#)

Pre-requisite: None

This course includes knowledge, process, and practices business law and legal environment of business. The course is designed to enable students to learn the basic methods and processes of law applied to

business organizations, buyers and sellers. It is also designed to help the students acquire skills reasoning based on legal arguments in small case situations or illustrations. In addition, this course will help them to learn legal terminology applied in business organizations and individuals as customers and employees.

MIT 261 Network Operating Systems [2-3-3]

[Quick links](#)

Pre-requisite: MIT 171 Data Communication and Networks

To provide students with hands-on experience, skills, and knowledge to install and configure a network operating system.

MIT 262 PC Configuration and Troubleshooting [1-6-3]

[Quick links](#)

Pre-requisite: MIT 173 PC Building and Maintenance

This course prepares the students to support a variety of desktop operating systems used on personal computers. It explains the generic functions of any operating system running on a PC and how the OS is related to the user, applications, and hardware. The course also explains the concepts, tools, methods, and techniques that are used to install, maintain and troubleshoot the OS running on a PC. Some basic network configuration is also covered.

MIT 263 Internet Services Management [2-3-3]

[Quick links](#)

Pre-requisite: MIT 171 Data Communication and Networks

This course introduces students to the use and application of various network protocols used on the Internet. The course covers Internet services based on the TCP/IP protocol suite.

MIT 264 Enterprise Resource Planning [3-0-3]

[Quick links](#)

Pre-requisite: None

This course introduces the concepts of integrated business functions and the fundamentals principles of ERP. It develops an understanding of how these business functions fit together in an overall framework for enterprise resource planning (ERP). This course introduces the software approach to ERP through SAP. It provides a level of hands-on experience in both functional and technical areas of SAP.

MIT 270 Database Applications [0-3-1]

[Quick links](#)

Pre-requisite: MIT 012 Introduction to Computer

This course is a practical course for those who are majoring in office management, marketing, and accounting. This course provides knowledge and skills on creating and designing database tables, implementing and modifying database management system, data entry, querying databases, creating forms and reports.

MIT 271 Disaster Recovery [2-3-3]

[Quick links](#)

Pre-requisite: MIT 262 PC Configuration and Troubleshooting

To provide the students with the knowledge and skills required to identify vulnerabilities and threats, and implement appropriate countermeasures to recover in case of a disaster. It focuses on techniques to measure risks; avoid disasters and design disaster recovery solutions and plans.

MIT 272 End-User Support [2-3-3]

[Quick links](#)

Pre-requisite: MIT 262 PC Configuration and Troubleshooting

To provide the students with a comprehensive set of tools and techniques needed to identify and resolve various IT problems end-users face. Learn technologies used in Help Desk and computer support. Students will also acquire skills for troubleshooting computer problems and address the needs of end-users. They are introduced to the standard practices in end-user support.

MIT 273 System Administration [2-3-3]

[Quick links](#)

Pre-requisite: MIT 261 Network Operating Systems

To provide the students with a comprehensive understanding of Operating Systems hands-on exercises to develop the skills needed to implement Microsoft Windows-based Operating Systems in a

client/server environment. The course covers a wide range of concepts and technologies related to Microsoft based client/server network operating systems.

MIT 274 Computer and Network Security [2-3-3]

[Quick links](#)

Pre-requisite: MIT 261 Network Operating Systems and MIT 263 Internet Services Management

This course provides the knowledge and skills required in the area of IT security. It focuses on how to deploy security countermeasures to protect computers and networks. The course deals with Computer Security principles, ethical hacking, and security tools and techniques.

MIT 276 IT Safety Practices [1-0-1]

[Quick links](#)

Pre-requisite: None

This course provides students with an awareness of the best safety practices applied within an IT environment based on international standards.

MIT 277 Project Management [2-3-3]

[Quick links](#)

Pre-requisite: None

To provide an overview of the roles, responsibilities, and management methods of the technology project manager. The course assumes no prior knowledge of management techniques. It is intended to teach students how to develop approaches and styles of management for software projects. The course assumes a basic understanding of techniques and analysis.

MIT 279 Wireless Technology [2-4-3]

[Quick links](#)

Pre-requisites: MIT 163 Programming Concepts and MIT 171 Data Communications and Networks

This course provides students with an understanding of how wireless communication systems function. Also, students are taught how early cellular systems have migrated to digital networks. It provides the basics of building wireless systems in various topologies – WPAN, WLAN, WMAN, and WWAN. It focuses more on WLAN implementation.

MIT 281 Distributed Systems [2-3-3]

[Quick links](#)

Pre-requisites: MIT 171 Data Communication and network and MIT 172 Relational Database Concepts and Design

This course introduces students to the use of data and information in an enterprise-wide operation. Understand the technology at the center of collecting, storing, manipulating and distributing data in an organization. To understand the fundamentals of the collection of separate but linked processors and/or data stores. To familiarize students with the technology used to link sites which have data stored over the different geographic location.

MIT 282 COIT Project [0-4-2]

[Quick links](#)

Pre-requisite: None

This course enables the students to undertake a project applying the knowledge and skills acquired in their specialized field. Also, it enhances the students to develop an ability to define clear project goals and create a work breakdown structure for project activities.

MIT 290 Cooperative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

(Office Management Major)

Participate in workplace duties, tasks and assignments as a co-op trainee and complete weekly reports and prepare & submit a complete written report as per Coop manual and make a presentation on workplace/job experience and skills/concepts/methods learned.

MIT 291 Cooperative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

(Marketing Major)

This is an intensive on-the-job training program where each student spends fifteen weeks of working in a company/organization or an industry. It gives students ample opportunities to experience the real-life working environment and enable them to apply some of the skills they had learned at the college, and acquire workplace operational skills. It helps them undergo a process of transition from the intense classroom and lab training to working in an organizational/industrial environment. Students are evaluated on their performance at the workplace by their supervisors and also through a written report on acquired knowledge and skills and weekly reports, including an oral presentation (preferably using power points) on workplace knowledge and skills learning experience, evaluated by a faculty committee.

MIT 293 Cooperative Work Experience [0-40-3]

[Quick links](#)

Pre-requisite: None

(Computer and Information Technology Major)

Participate in workplace duties, tasks and assignments as a co-op trainee and complete weekly reports and prepare & submit a complete written report as per Coop manual and make a presentation on workplace/job experience and skills/concepts/methods learned.

MIT 369 Computer Programming [1-3-2]

[Quick links](#)

Pre-requisite: MIT 012 Introduction to Computer

This course provides students with an overall background of the concepts that must be present in a typical programming language. The students will have an understanding of the main programming concepts in both structured programming and event-driven programming. The students will gain practical experience using C++ programming languages. They will be provided with the background on modern programming methods such as object-oriented program construction.

MIT 370 Computer Programming in Visual Basic [1-3-2]

[Quick links](#)

Pre-requisite: MIT 012 Introduction to Computer

This course assumes no prior knowledge of programming and provides students with the required foundation to develop application solutions in their specialization. The students will learn how to analyze & decompose a problem and formulate an algorithmic solution using pseudo-code. Together with modern programming methods such as object-oriented program construction, students will gain an understanding of event-driven programming, through practical experience using Visual Basic programming language.

MIT 410 Organization and Management [2-3-3]

[Quick links](#)

Pre-requisite: MIT 203 Organizational Behavior and Ethics

The course is designed to provide students with an understanding of the management skills they will need to be effective throughout their careers. Moreover, it will develop their basic understanding of managing organizational activities relating to planning, organizing, leading, controlling, communication and human resource management.

MIT 412 Industrial Sociology [1-3-2]

[Quick links](#)

Pre-requisite: MIT 203 Organizational Behavior and Ethics

This course introduces to students the sociology discipline, primarily on the interplay of sociological theories and applications. It fosters an appreciation of such sociological concerns as a sociological analysis of work and industry, work and society, organizations and workplaces, changing organizations and management of work, occupations and society, work experiences, opportunities and meanings, conflict, challenges and resistance in work.

MIT 413 Environment and Society [1-3-2]

[Quick links](#)

Pre-requisite: None

This course focuses attention on human-environment relations and connects issues concerning human societies, ecological systems and the environment with data and perspectives from different fields of study in the natural and social sciences.

MIT 430 Engineering Economics [2-0-2]

[Quick links](#)

Pre-requisite: GES 314 Engineering Mathematics

This course presents the methods of economic analysis in engineering that systematically evaluate the costs and benefits of technical project proposals. Students will be exposed to the different economic and financial concepts and techniques that include the time value of money, economic equivalence, measures of the worth of investment, rate of return of investment, investment risk assessment, and capital budgeting. These will enhance their understanding of the factors that affect the economic success of engineering projects, to the end, will enable them to formulate recommendations that will ensure the best use of capital.