Course Descriptions (Catalogue)

Math 144–Calculus I 4(4-0-0): This is an introductory course of mathematics for college of engineering students. The course covers the basic concepts and methods of calculus. At the beginning of the course the instructor will provide students the knowledge of the number systems, algebraic operations and functions of single variable with domain and range so that students can learn differentiation of the functions. The main topics to be covered in this course include: Limits, Continuity, Differentiation of functions of a single variable, Exponential, Logarithmic, Trigonometric, Inverse trigonometric functions, Applications of derivatives, Differentials, Curve Sketching, L'Hopital Rule, Mean value theorems, Area and estimating with finite sums, Introduction to integrals and definite integrals. Four 1-hour lectures per week. Co-requisite: None.

Math 145–Calculus II 4(4-0-0): This is an intermediate level calculus course designed for undergraduate Engineering students. This course covers mainly the integration and basic principles of Vectors and their applications. At the beginning of this course, the instructor will give the review of differentiation and integration. In depth, the students will learn the methods of integration and vectors. The topic covered include, Techniques of Integration, Improper Integration, Applications of Integration, Infinite Sequences and Series, (Power series and Taylor series), Polar coordinates, Transcendental Functions, Vectors, Vector Valued Functions. Four 1-hour lectures per week. Pre-requisite: Math 144.

Math 240–Differential Equations 3(3-0-0): This course is an introductory course of differential equations for college of engineering students. The course covers different methods and concepts to solve first and second order differential equations. At the beginning of the course we discuss some definitions and terminology about differential equations. Then we move to solving first and second order differential equations. The topics in this course include, linear differential equations, solving first order differential equations, solving second order differential equations, series solutions of second order linear differential equations, solving systems of linear differential equations, Laplace transform and its applications in solving differential equations. Three 1-hour lectures per week. Pre-requisite: Math 145.

Math 244–Multivariate Calculus 3(3-0-0): This course is an advanced course in calculus, designed for undergraduate students of engineering. The course covers the basic principles and methods of differentiation and integration of two or more variables. At the beginning of the course, the Instructor will give a review of functions of one variable and its differentiation and integration. Then, the functions of two or more variables with domain and range will be discussed. Throughout the course, the following main topics will be covered: solid analytic geometry; vector calculus; partial derivative; and multiple integrals. The coverage will also include relevant and important applications in the sciences and engineering. Three 1-hour lectures per week. Pre-requisite: Math 145.

Phys 140–General Physics I 3(3-0-0): The course is an introduction to units, measurements, motion in one and two dimensions, kinematics and dynamics, Newton's laws, work and energy, rotational dynamics, linear and angular momentum, torque, and collisions. Basic calculus and multi-variable algebra will be used. Three 1-hour lectures per week. Co-requisite: Math 144 & Phys 144.

Phys 141–General Physics II 3(3-0-0): This course introduces students to the physics of electricity and magnetism and the connections between them. The concepts of electric charge, electric field, electric potential, Kirchhoff Law, Gauss Law, electric and magnetic fluxes, capacitance, resistivity and resistance, connections in series and in parallel, RC-circuit, magnetic field, magnetic force, magnetic and electric torques, Ampere Law, electromagnetic induction, and Faraday Law and Lenz Law will be taught. Three 1-hour lectures per week. Pre-requisite: Phys 140. Co-requisite: Phys 145.

Phys 144–General Physics I Lab. 1(0-0-3): Measure basic constants such as length, weight and time, value of acceleration due to gravity. Design and conduct experiments in mechanics. Analyze and interpret experiment data. Write a scientific report. Draw and interpret a graph. Apply experimental principles and error calculations to mechanics. Three hours Lab. per week. Co-requisite: Phys 140.

Phys 145–General Physics II Lab. 1(0-0-3): This course introduces students to the basic electrical measurements' techniques and to the physics of electricity and magnetism. The concepts of basic measurements, Resistors in series and in parallel, Verifying Ohm's law, Wheatstone Bridge, Verifying Kirchhoff's Laws, Resistivity, Capacitors in series and in parallel, RC circuit, Introduction to Oscilloscope, the Mechanical Equivalent of Heat, the Negative Temperature Coefficient of Resistance (Thermistor), Galvanometer, and the Magnetic Moment will be taught. Three hours Lab. per week. Co-requisite: Phys 141.

Chem 140-General Chemistry I 3(3-0-0): Matter properties and measurement, Atoms and the Atomic Theory, Chemical Compounds, Chemical Reactions, Reactions in Aqueous Solutions, Liquids Solids and Intermolecular Forces, Electrons in Atoms, Periodic Table and Atomic Properties, Chemical Bonding, Valence-Bond, Hybridization of Atomic Orbital, Multiple Covalent Bonds, Molecular Orbital Theory, Liquids and Solids. Three 1-hour lectures per week. Co-requisite: None.

Chem 142-General Chemistry II 3(3-0-0): Properties of Gases: Kinetic-molecular theory of gases, Ideal gas law, Mixtures of gases, Thermo- chemistry, Principles of Chemical Equilibrium, Acids and Bases, Buffer Solutions, Neutralization Reactions and Titration Curves, Solubility and Complex-Ion Equilibria, Spontaneous Change: Entropy and Free Energy, Thermodynamic, Solutions and Their Physical Properties, Chemical Kinetics and Electrochemistry. Three 1-hour lectures per week. Pre-requisite: Chem 140. Co-requisite: Chem 143.

Chem 143–General Chemistry Lab. 1(0-0-3): Laboratory safety rules and Evaluation of analytical data, Definition and determination of density, explanation and determination of specific heat, concept of Acids, bases and Heat of Neutralization Reaction and its determination, reversible reactions, concept of equilibrium constant and its determination, LeChatelier principle and its verification, principle involved in Acid base titrations, indicators, Ionization of electrolytes, determination of dissociation constant of weak acid(Ka), principle involved in complex metric titrations, hardness of water and its determination. Three hours Lab. per week. Co-requisite: Chem 142.

Chem 242–Physical Chemistry 3(3-0-0): Molecular kinetic theory of gases, First law of thermodynamics, Thermos chemistry, Second and third laws of thermodynamics, Free energies, Phases and solutions, Phase Equilibrium, Chemical equilibrium, Surface Chemistry. Three 1-hour lectures per week. Three 1-hour lectures per week. Prerequisite(s): Chem 142.

Chem 243–Organic Chemistry 3(3-0-0): Introduction, nomenclature of organic compounds, chemical bonding, isomers, aromatic and aliphatic hydrocarbons, olefins, acetylenes, cycloalkanes, stereoisomers, halogenated organic compounds, reactions of free radicals, alcohols, ethers, epoxides, thiols, sulfides, synthetic polymers. Three 1-hour lectures per week. Prerequisite(s): Chem 142.

Bio 140–Biology 3(3-0-0): The course is designed to enhance students' knowledge to understand basic biological processes including the followings: The energy in the cellular work, Cellular respiration, Photosynthesis, Cell reproduction, various pattern of inheritance, DNA replication, Gene Regulation, DNA Technology and Evolution. Three 1-hour lectures per week. Pre-requisite: None.

Engr 100-Introduction To Engineering 1(1-0-0): This course introduces engineering to students, particularly those who are interested in an engineering profession. It covers engineering ethics, teamwork, communication skills, engineering topics, and engineering problem solving skills and design methodology. One 1-lecture per week. Co-requisite: None.

Engr 105-Engineering Computing & Skills 2(2-0-0): Problem solving skills and computing using MATLAB. Two 1-hour lectures per week. Pre-requisite: Engr 100. Co-requisite: Math 145.

Engr 106–Engineering Graphics 2(1-0-3): An introductory course in engineering graphics focuses on graphical communication. Topics include descriptive geometry elements, visualization, engineering drawing techniques, orthographic projection, pictorial representation, section views, and basic dimensioning. The course incorporates computer aided drafting (CAD) with engineering applications using 2-D drawing. This course is divided in to two sections: sketching and AutoCAD. The course begins by teaching the basics of engineering graphics using sketching. Freehand sketching using only a pencil and paper is an important skill for any engineer.

It is a means of quickly conveying technical information to others. Through sketching the concepts of pictorial projections, section views, auxiliary views and dimensioning are taught. Once the foundation of engineering graphics is known, these concepts can be applied using computer aided design (CAD) software. AutoCAD is taught first. AutoCAD is a drawing software package used to create two dimensional engineering drawings. One 2-hours lecture per week. Co-requisite: None.

Engr 205-Material Science 3(3-0-0): Mechanical, electrical and chemical properties of engineering materials, fundamentals of crystallography, crystal defects, Impurities and imperfections in solids. Atomic diffusion. Single phase metals and alloys; elastic and plastic deformation, recrystallization and grain growth. Multi-phase materials: phase diagrams and equilibrium microstructural development, Heat treatment process, Studies of the widely-used engineering metals, alloys, polymers, composites & ceramics. Three 1-hour lectures per week. Prerequisite(s): Chem 142.

Engr 206-Electric Circuits 3(3-0-0): Resistors, capacitors, inductors, currents; voltages; power and energy; circuit analysis techniques; DC and AC analysis; magnetic circuits and transformers; Introduction to DC and AC machines. Three 1-hour lectures per week. Pre-requisite: Phys 141.

Engr 223-Engineering Mechanics 3(3-0-0): Engineering Mechanics, covering both statics and dynamics. Topics include vector algebra, force systems, free-body diagrams, equilibrium of particles and rigid bodies, kinematics of particles and rigid bodies, Newton's laws applied to particles and rigid bodies, friction. Three 1-hour lectures per week. Prerequisite(s): Math 145 & Phys 140. Co-requisite(s): None.

CS 204–Engineering Programming 3(3-0-0): Introduction to computer systems; problem solving methodology; testing and debugging of programs; variables, declarations, and assignments; input and output; data types; control flow and looping; functions and overloading; streams and input/output; one-dimensional arrays; two-dimensional arrays; pointers and dynamic arrays; structures; abstract data types and classes; inheritance; friends, overloaded operators, and arrays in classes; recursive functions.. Projects that will require lab work will be assigned weekly. Three 1-hour lectures per week. Prerequisite: Math 144.

Engr 307–Engineering Economics 3(3-0-0): The course covers the following topics: Engineering Economic Decisions; Understanding Financial Statements; Cost Concepts and Behaviors; Time is Money; Understanding Money and Its Management; Principles of Investing; Present Worth Analysis; Annual Equivalent Worth Analysis; Rate of Return Analysis; Depreciation; Taxes; Break-Even Analysis, Cost Estimation; Developing Project Cash Flows; Inflation; Replacement Decisions. Three 1-hour lectures per week. Prerequisite(s): Engr 100.

Engr 310-Numerical Methods 3(3-0-0): Introduction to Numerical Methods, Solution of Nonlinear Equations, Solution of Simultaneous Linear Algebraic Equations, Solution of Matrix Eigenvalue Problem, Curve Fitting and Interpolation, Numerical Differentiation, Numerical Integration, Ordinary Differential Equations: Initial-Value Problems, Ordinary Differential Equations: Boundary-Value Problems. Three 1-hour lectures per week. Prerequisite: Math 240, CS 204 & Engr 105.

Engr 399-Engineering Training 0(0-0-0): All engineering students are required to undergo a comprehensive "Engineering Training Program" with a reputable and specialized industrial firm. The firm can be in or outside Saudi Arabia relevant to his major area of interest in engineering analysis, design, or construction. The main purpose of this summer training is to enhance the students' practical experience and career abilities. Also, it deepens their engineering knowledge acquired during their academic years in the field of practical experience in real-life engineering projects. Additionally, such a program improves the relationship between the College of Engineering and the governmental and private industrial firms. Also, it can provide the industry with well-trained professionals in the near future. The qualifying student should spend at least eight weeks in a governmental organization, a reputable industrial firm, or a research center that is involved with engineering activities. Two months of full time training. Pre-requisite: Senior Standing & Eng 137.

ChE 201-Principles of Chemical Engineering 3(3-0-0): Use of basic mathematical concepts, physical laws, stoichiometry, and the thermodynamic properties of matter to obtain material and energy balances for steady

and unsteady state systems including those with chemical reaction. Three 1-hour lectures per week. Prerequisite(s): Phys 140 & Engr 106.

ChE 203-Chemical Engineering Thermodynamics I 3(3-0-0): Thermodynamics concepts and definitions (states, properties, systems, control volume, processes, cycles, units, tables of properties), work and heat, first law, internal energy and enthalpy, conservation of mass, steady–state and uniform state processes, second law, reversible processes, entropy, Claudius inequality, principle of the increase of entropy, efficiencies, irreversibility and availability, power and refrigeration cycles. Three 1-hour lectures per week. Prerequisite(s): Chem 142.

ChE 204-Process Fluid Mechanics 3(3-0-0): Fluid statics, continuity equation, Bernoulli's equation, and flow measuring devices, fluid friction of flowing systems, momentum balance, pump types and pump performance curves. Three 1-hour lectures per week. Prerequisite(s): ChE 201. Co-requisite(s): Math 240.

ChE 301-Chemical Engineering Thermodynamics II 3(3-0-0): Properties of ideal and non-ideal vapors and liquids, ideal and non-ideal vapor-liquid equilibria, ideal and non-ideal liquid-liquid equilibria, equilibria of chemical reaction systems, electrolytic solutions, surface thermodynamics, solid phase thermos-dynamics. Three 1-hour lectures per week. Prerequisite(s): ChE 203 & Chem 242.

ChE 302-Process Heat Transfer 3(3-0-0): Modes of heat transfer, steady-state heat conduction, unsteady-state heat conduction, principles of convection, natural and forced convection, radiation heat transfer, boiling and condensation and design of heat exchangers and heat transfer equipment. Three 1-hour lectures per week. Prerequisite(s): ChE 204.

ChE 303-Separation Processes I 3(3-0-0): Analysis and design of unit operations involving: particulate solids handling and storage, screening and classification, size reduction processes, filtration, settling, centrifugation and fluidization. Three 1-hour lectures per week. Prerequisite(s): ChE 204.

ChE 305-Chemical Process Industries 3(3-0-0): Fundamentals of chemical industries, water treatment, industrial gases; inorganic acids, petroleum and petrochemicals, ceramic, cement and glass industries; fertilizers industries; oil and fat, soap and detergents; pigments and surface coating industries. Three 1-hour lectures per week. Prerequisite(s): Chem 243.

ChE 308-Mass Transfer 3(3-0-0): Molecular diffusion, unsteady state mass transfer, mass transfer coefficients, mass transfer across interfaces, and analogy between momentum, heat and mass transfer, mass transfer between phases, membrane separation. Three 1-hour lectures per week. Prerequisite(s): ChE 302 & Math 244.

ChE 304-Reaction Engineering 3(3-0-0): Rate laws and stoichiometry, kinetics and mechanisms of homogeneous and heterogeneous reactions, analysis of kinetics data, design of ideal isothermal and no isothermal reactors. Three 1-hour lectures per week. Prerequisite(s): ChE 301 & Chem 243.

ChE 307-Biochemical Engineering 3(3-0-0): Introduction to the basic concepts of biochemical engineering; application of chemical engineering skills to the analysis, design, and mitigation of hazards of biologically based processes; kinetics, heat and mass transfer, and thermodynamics as they apply to enzyme catalysis, microbial growth, bioreactor design, and product recovery and safety. Three 1-hour lectures per week. Prerequisite(s): Bio 140. Co-requisite(s): ChE 304.

ChE 401-Separation Processes II 3(3-0-0): Fundamentals & design-related issues of the following separation techniques: absorption, stripping, binary & multi-component distillation, liquid-liquid extraction, and leaching. Three 1-hour lectures per week. Prerequisite(s): ChE 308 & Engr 310.

ChE 402-Plant Design 3(3-0-0): Design of chemical processes including process flow sheet preparation, equipment selection and design, materials of construction and corrosion, utilities, plant location and plant layout, process economics, profitability analysis, optimum operating conditions, computer aided design, design optimization, health, safety and environment aspects. Three 1-hour lectures per week. Prerequisite(s): Engr 307, Engr 205 & Engr 223. Co-requisite(s): ChE 401 & ChE 410.

ChE 403-Separation Processes III 3(3-0-0): Evaporation, humidification and dehumidification, drying, adsorption, crystallization. Three 1-hour lectures per week. Prerequisite(s): ChE 401.

ChE 404-Process Dynamics & Control 3(3-0-0): Introduction to control systems, modeling of steady and unsteady-state behavior of chemical processes, transfer functions, dynamic behavior of first and second order systems, basic components of control systems, design and analysis of feedback control systems related to chemical engineering processes. Three 1-hour lectures per week. Prerequisite(s): Math 240 & ChE 304.

ChE 405-Chemical Engineering Lab II 1(0-0-3): Experiments selected from reaction engineering and thermodynamics courses. Three hours Lab. per week. Prerequisite(s): ChE 304.

ChE 406-Chemical Engineering Lab III 1(0-0-3): Selected experiments from separation processes II, separation processes III and process dynamics and control courses. Three hours Lab. per week. Co-requisite(s): ChE 403 & ChE 404.

ChE 407-Chemical Engineering Optimization 3(3-0-0): Survey of continuous optimization problems, structure and formulation of optimization problems in chemical engineering, unconstrained optimization problems, linear programming, introduction to constrained optimization, solution of constrained optimization problems, selected applications in chemical engineering, software packages in optimization. Three 1-hour lectures per week. Prerequisite(s): Math 310.

ChE 408-Chemical Process Safety 3(3-0-0): Hazards of fire and explosions, effects of toxic materials on human and its control, local and international codes and regulations, handling and disposal of hazardous materials, hazard identification and risk assessment from process industries, safety procedures for process industries, emergency plans. Three 1-hour lectures per week. Prerequisite(s): ChE 304.

ChE 420-Experimental Design and Data Analysis 3(3-0-0): Review of statistical distributions, simple comparative experiments, experiments with a single factor, analysis of variance, randomized blocks, Latin squares and related designs, incomplete block designs, factorial designs, two-level fraction factorial designs, multi-factor experiment and nested designs. Three 1-hour lectures per week. Prerequisite(s): Engr 310.

ChE 421-Corrosion Engineering 3(3-0-0): Electrochemical and metallurgical aspects of corrosion, forms of corrosion, modern theory of corrosion and its application, iron and steel corrosion, corrosion prevention, case studies. Three 1-hour lectures per week. Prerequisite(s): Engr 205.

ChE 430-Polymer Engineering 3(3-0-0): Definition of polymers, classification of polymers, effect of chemical structure on polymer properties, microstructure of polymers: crystallinity, orientation, molecular conformation, relation between microstructure and physical properties of polymers, polymerization methods, polymerization techniques, molecular weight characterization, polymer processing: extrusion, injection molding, blow molding, thermoforming, film blowing. Three 1-hour lectures per week. Prerequisite(s): Chem 243.

ChE 431–Natural Gas Engineering 3(3-0-0): Current and prospective energy situation, sources of natural gas, characterization of natural gas; Exploration and production of natural gas; Design and operations of systems related to the hydrocarbon gases and liquids for industrial and commercial applications; Unit operations of gas processing including compression, transportation, acid gas removal, gas liquefaction, and cryogenic distillation, concentration of their components by absorption and fractionalization procedures; Gas processing products and economics, conversion of natural gas; Use of computer aided design and economic evaluation of natural gas equipment and facility designs. Three 1-hour lectures per week. Prerequisite(s): Chem 243.

ChE 432-Petroleum Refining Engineering 3(3-0-0): Origin, occurrence and constituents of petroleum, crude oil analysis; Petroleum products and their uses; Crude oil distillation; Chemical reactions and refinery operations of delayed coking, catalytic reforming and isomerization, catalytic cracking, hydrotreating, catalytic hydrocracking, alkylation; Product blending and production of lubricating oil; Asphalt technology. Three 1-hour lectures per week. Prerequisite(s): Chem 243.

ChE 433-Petrochemical Industries 3(3-0-0): Physical and chemical properties of raw materials, processes used in the manufacture of petroleum-based chemicals; Application of scientific and engineering principles

involved in the production of hydrogen, alcohols, olefins; Aromatics, aldehydes, ketones, acids, rubber, and other polymers. Three lectures per week. Prerequisite(s): Chem 243.

ChE 441- Introduction to Environmental Engineering 3(3 -0-0): Concepts and terminology; Sources and impacts of water pollutants; Conventional water and wastewater treatment processes; Sources and impacts of air pollutants; Air pollution control through gas cleaning devices; Solid waste classification, handling and ultimate disposal. Three 1-hour lectures per week. Prerequisite(s): ChE 303.

ChE 442-Industrial Water Treatment 3(3-0-0): Water sources, impurities and chemistry; External treatment; Boiler water systems; Cooling water systems; Pretreatment of cooling water systems; Control of corrosion, deposits and scale. Three 1-hour lectures per week. Prerequisite(s): ChE 303.

ChE 443-Industrial Wastewater Treatment 3(3-0-0): Sources, characteristics and treatment techniques for wastewater generated from various industrial categories. Three 1-hour lectures per week. Prerequisite(s): ChE 303.

ChE 444-Water Desalination 3(3-0-0): Water sources and characterization, water chemistry, water treatment processes; Scale formation problems and pretreatment requirements; Desalination processes: thermal desalination processes, membrane processes; Post treatment of product water. Three 1-hour lectures per week. Prerequisite(s): ChE 308.

ChE 452–Air Pollution and Control 3(3-0-0): Economic, social and health implications of air pollution; Air pollution case studies; Methods of air pollution control and design techniques; Sources, types and characteristics of air pollution; Air quality standards and other legislation containing air pollution; Types of air pollution; Environmental regulations for air pollution; Engineering alternatives for air pollution control. Three 1-hour lectures per week. Prerequisite(s): ChE 303.

ChE 481-Undergraduate Research I 3(3-0-0): This course is designed to enhance an undergraduate curriculum in chemical engineering by providing students with the opportunity to engage in research activities. Requires progress reports and a comprehensive written report. Three 1-hour lectures per week. Prerequisite(s): Senior Standing.

ChE 482-Undergraduate Research II 3(3-0-0): This course is designed to enhance an undergraduate curriculum in chemical engineering by providing students with the opportunity to engage in research activities. Requires progress reports and a comprehensive written report. Three 1-hour lectures per week. Prerequisite(s): Senior Standing.

ChE 483-Special Topics I 3(3-0-0): The course covers special topics in an area of chemical engineering. Given on demand. Three 1-hour lectures per week. Prerequisite(s): Senior Standing.

ChE 484-Special Topics II 3(3-0-0): The course covers special topics in an area of chemical engineering. Given on demand. Three 1-hour lectures per week. Prerequisite(s): Senior Standing.

ChE 495- Senior Design I 2(2-0-0): The first course of a two-semester sequence of senior capstone design. Each group selects a project under the supervision of a faculty member and makes literature review, process selection, plant capacity determination, and mass and energy balances. They will prepare and submit a formal report and make public presentation. Two 1-hour lectures per week. Prerequisite(s): Senior Standing. Co-requisite(s): ChE 402.

ChE 496- Senior Design II 2(2-0-0): This is the second course of a two-semester sequence of senior capstone design. It provides students with experience in the process and practice of a chemical component/system design from concept through final design and implementation. Emphasis is on teamwork, project management, testing through simulation, oral and written communications. Two 1-hour lectures per week. Prerequisite(s): ChE 495.

Eng 133–English Composition I 2(2-0-0): This is an intermediate level writing class. Students are guided through the stages of the writing process to write paragraphs that are both meaningful and organized and include a topic sentence with a controlling idea and conclusion. Students write multi-draft compositions from a variety

of practical and academic purposes. They improve their writing by studying model sentences and paragraphs, basic sentence patterns, mechanics, coordinating conjunctions, transitions and vocabulary. Two 1-hour lectures per week. Co-requisite: None.

Eng 134–English Composition II 2(2,0,0): This English course is designed to take learners from the paragraph level of writing in English to the Essay level. It concentrates of the essential form and function of the essay and prepares the ground for the academic essay. Particular importance is given to tasks of description and argumentation, including work on comparison, definition, cause-effect and expression of opinion in essay writing. Thus, students are taken through the major stages of the essay composition process. Two 1-hour lectures per week. Pre-requisite: Eng 133.

Eng 137–Technical Writing 2(2-0-0): This course introduces students to the fundamentals of writing, designing and conveying technical information to different audiences. Students will learn about technical writing conventions, such as organization, style and tone and illustration and layout as they work through the writing process to produce a variety of common technical documents that they will encounter in their academic work. Two 1-hour lectures per week. Pre-requisite: Eng 134.

Eng 138–Fundamentals of Speech Communication 2(2-0-0): A study of communication theories as applied to speech: practical communicative experiences ranging from interpersonal communication and small-group process through problem identification and solution in discussion, to informative and persuasive speaking in standard speaker-audience situations. One 2-hours lectures per week. Co-requisite: Eng 134.

Mgt 292–Management Fundamentals & Skill 3(3-0-0): The course covers Management fundamentals & Skill, such as, Global Management - Change and Innovation - Appendix: Managing Entrepreneurial Ventures - Decision Making - Strategic Management - Module Planning Tools and Techniques - In class discussion: Ethics Dilemma - Operations Management - Marketing Management - E Business - Marketing Plan - Human Resource Management - Team Building - Foundations of Individual Behavior - Communication. Three 1-hour lectures per week. Prerequisite(s): None.

SSC 101- Creed and Doctrines 2(2-0-0): Creed: definition, importance, sources, characteristics, study methodology, pillars of faith, influence of creed on individuals and society, belief nullifiers, thought constraints, study of some contemporary doctrines: secularism, Satan worshipers, Baha'ism, Zionism, Misoneism, Christian fundamentalism. Student is required to memorize part of the holy Quran. One 2-hours lectures per week. Prerequisite(s): None.

SSC 102 Islamic Culture 2(2-0-0): Moderation, Islam globalism and human ties, discrimination and nationalism, Arabic as the medium of education and culture, science and religion, interfaith dialogue, Orientalism and Christianization, Colonialism, Westernization, modernity in literature, Globalization, Terrorism, Development of Moslem nations. One 2-hours lectures per week. Prerequisite(s): None.

SSC 103 Islamic Morals and Ethics 2(2-0-0): Ethics: its definition, importance, swearing, and stature in Islam. Characteristics of Islamic morals. Moral obligation, moral responsibility, and moral sanction. Pictures of the manners of the Prophet Mohammed, peace and blessings be upon him. Pictures of the morals of his companions. Ethics and ethics of the profession. The Kingdom of Saudi Arabia's efforts in the field of protecting integrity and combating professional corruption, while mentioning ethical applications from Saudi professional systems. Introduction to the National Anti-Corruption Commission "integrity". The role of the National Anti-Corruption Commission "integrity" in protecting the integrity and combating professional corruption. Prerequisite(s): None

SSC 104 Studies in the Biography of the Prophet 2(2-0-0): The importance of studying the Prophet Mohammed's biography. A glimpse into Arab life before Islam: religious, moral, social, and political life. The scientific method in the study of the Prophet's biography. Stages of the Prophet's Biography and the values learned from them. The Characteristics of the Prophet. Prophetic merits: the characteristics of the Prophet, both moral and ethical. The role of the Kingdom of Saudi Arabia in serving the prophetic biography. The personal efforts of some scholars of the Kingdom of Saudi Arabia to defend the Sunnah of the Prophet. Prerequisite(s): None

SSC 105 Medical jurisprudence 2(2-0-0): Medical jurisprudence. Treatment in Islamic law. Prophetic Medicine: preventive commandments, and treatment models. Examples of the scientific miracle of prophetic medicine. Legitimate Ruqyah and its evidence. Provisions of acts of worship related to the patient and the medical practitioner. Authorization and medical responsibility. Responsibility for a medical error. Applications of legal rules and intentions on medical provisions. Examples of contemporary medical issues: plastic surgery, fertilization outside the body, birth control and its regulation, milk bank, sperm freezing, miscarriage, gender determination, HIV/AIDS, organ and cell transplantation, resuscitation devices, and weight loss. Prerequisite(s): None

SSC 106 Economics & Politics in Islam 2(2-0-0): Political system: definition, and characteristics. Characteristics of the Islamic political system. The pillars of the state: the nation, and society. Manifestations of application of the political system in the Kingdom of Saudi Arabia. The Islamic economic system: definition, origin and development, importance, basics, and the characteristics of the economic system in Islam. Contemporary economic systems. Economic globalization. Property in Islam. Areas of intellectual property. Legitimate methods of ownership. Islam and economic freedom. Socioeconomic solidarity. Prerequisite(s): None

SSC 107 Islamic Social & Family Behavior 2(2-0-0): The social system in Islam. Social security and its role in preserving society. The importance of the family in Islam. Family protection factors in Islam. The role of the family in achieving community security. The response to the most prominent suspicions raised about the family. The most important social problems and ways to prevent. A study of some contemporary issues in the social system. Development and its impact on social renaissance. The relationship between the individual and society in Islam and positive systems. Study of contemporary issues related to women. The role of women towards their societies. The psychological characteristics of men and women, and their effect on family coexistence. Prerequisite(s): None

SSC 108 Management & Entrepreneurship 2(2-0-0):In the first part of this course, students from various disciplines will get acquainted with the most important basic concepts related to management and administrative decision, in addition to the most important traditional administrative functions of planning, organizing, directing and controlling, as well as what the knowledge and capabilities required by modern and future management come in the forefront of, Likewise leadership, participatory management, posterior leadership, technology management. In the other part of this course, students will have a solid foundation on the concept of entrepreneurship, its strategies, and its role in developing the national economy through small-scale projects. In this part, students will learn how to discover opportunities, understand, evaluate, and then transform them into sustainable business. Each student will also be able to learn the features and characteristics of entrepreneurs and the difficulties associated with entrepreneurship. Prerequisite(s): None

SSC 109 Health & Fitness 2(2-0-0): What is health? Physical fitness. Textures. Healthy nutrition. Weight control. Infectious and non-infectious diseases. Smoking. Drug. First aid. Car Accidents. Psychological stress. Prerequisite(s): None

SSC 110 Research Skills Research 2(2-0-0): concept, goals, fields, types, and steps. Research Methods: Descriptive Approach, Experimental Approach, and Historical Approach. Elements of a scientific research plan: Introduction, its problem; Its goals, importance, assumptions, and questions. Review of previous studies: How to critically analyze previous studies. Research hypotheses: definition, types, and formulation. References: books, periodicals, scientific theses, bulletins, and manuscripts. How to obtain information from global databases, and the skills of using the library electronically. Methods for writing references and quotations. Samples: their types and methods of selection. Research tools: (questionnaire - interview - observation - tests and measurements) and checking their suitability for the application. Scientific writing for research (abstract in Arabic and foreign languages - introduction - discussion - conclusion). Research ethics: Scientific honesty in quoting and avoiding scientific plagiarism. Prerequisite(s): None

SSC 111 Volunteer Work 2(2-0-0): The concept of volunteering from a social perspective. The importance, fields, and sources of volunteer work. Voluntary work in Islam. Volunteering in international and Arabic

legislations. Theoretical foundations for volunteer efforts. Obstacles to volunteer, with a statement of volunteering culture and the ethics of volunteering in Saudi society. Management and organizations of volunteer work (administrative organization of charitable societies and social institutions in the Kingdom of Saudi Arabia). Evaluating the reality of volunteer work in society, with an indication of the relationship between civil and governmental social bodies. Voluntary work and its relationship to community security. Examples of voluntary work organizations at the Arabic level in general and the Kingdom of Saudi Arabia in particular. Voluntary field exercise for four weeks. Reviewing and evaluating the student's voluntary experience. Prerequisite(s): None

SSC 112 Medicine: Type and use 2(2-0-0): The main objective of this course is to introduce students to medicine and its various types and forms. This course also aims to provide the student with some special skills for optimal interaction with some common types of drugs such as antibiotics and medications in some famous physiological situations such as pregnancy, lactation, and some chronic diseases. This approach deals with describing known drug interactions, especially when using medicines with some types of foods, herbs, and nutritional supplements. Prerequisite(s): None

SSC 113 Human Rights in Islam 2(2-0-0): Human rights: definition and importance. The basic premises of human rights. Principles of human rights in Islam, philosophy, and thought. The history of human rights. The Universal Declaration of Human Rights: legal value and criticism. Islamic Declaration of Human Rights, the Kingdom of Saudi Arabia's concern for human rights. The legal framework for human rights in the Kingdom. Basic human rights: the right to life, the right to justice, the right to freedom, the right to religion, and the right to work. Prerequisite(s): None

SSC 114 Food and Nutrition 2(2-0-0): Introduction to food science and nutrition. Food and nutritional terminologies. The global food security problem. Fields of the food industry in the Kingdom. Main food groups (dairy - meat - vegetables and fruits - grains). Nutrients (food ingredients): moisture, carbohydrates (starch) sugars, dietary fiber, proteins, oils and fats, vitamins, and minerals. Food additive. Food corruption, and the authorities concerned with food control in the Kingdom. Methods of food preservation: drying, packaging, cooling, and freezing. Nutrition and its importance for the human body. Food physiology. Daily needs of nutrients. Nutrition and general health of the body. Nutritional status sections. An example of obese malnutrition diseases. Dietary energy, production, and use in the body - the body's energy needs. Prerequisite(s): None

Deic 317-Islamic Morals and Ethics 2(2-0-0): Morals and Ethics: definition and foundations, characteristics, study of model samples of the Prophets' morals and ethics, tools of moral/ethical education in Islam. Concept of profession and its importance in human life, constituents of professional morals/ethics and its constraints, model samples of professional morals/ethics in Islam. Student is required to memorize part of the holy Quran. One 2-hours lectures per week. Prerequisite(s): None

Deic 318-Economic System in Islam 2(2-0-0): Islamic Economy: (its nature and principles, development, and characteristics), the economic problem and how to face it, contemporary economic systems (capitalism, socialism), economic globalism, World Bank and its goals, World Trade Organization and its goals, ownership in Islam: definition, types, constraints. Islam and economic freedom, Production, distribution, expenditure, economic policies in contracts and transactions. Student is required to memorize part of the holy Quran. One 2-hours lectures per week. Prerequisite(s): None.

Deic 401- Islamic Social System 2(2-0-0): Society: definition, building blocks of society in Islam, Islamic society attributes, Family in Islam: definition, status, importance, building blocks, marriage and its purposes, spouses' rights, parents, siblings, and relatives' rights, women's status and rights in Islam, Family controversial issues about family system in Islam and responding to those issues (polygamy, inheritance, veil, divorce, etc.), Family problems and remedies (women's work, alimony, stewardship, etc.). Student is required to memorize part of the holy Quran. One 2-hours lectures per week. Prerequisite(s): None.