Course Title	Description
General Chemistry I (CHEM 101)	An introduction to atomic structure, quantum theory, the periodic table, chemical bonds, reactions in solutions, properties of solutions and gases, thermochemistry, and electrochemistry.
General Physics I (PHY 101)	Fundamentals of physics, including laws of motion, practical applications, laboratory experiments, and development of relative thinking and graphing skills.
Calculus I (MA 101)	An introduction to differential calculus covering limits, continuity, derivatives, applications such as rates of change, approximations, optimizations, curve sketching, and Rolle's and the Mean Value Theorem.
Introduction to Academic Discourse (ESP 401)	Academic reading, writing, and vocabulary skills; writing paragraphs on engineering topics, and engaging with scientific texts through critique and analysis.
Practical Grammar (ARB 101)	Aims to enhance students' linguistic production by providing grammatical rules that promote coherence and clarity in texts, focusing on style analysis.
Health and Physical Education (HPE 101)	Practical training to promote general health and physical fitness, emphasizing values, independence, and responsibility.
General Physics II (PHY 102)	Topics include wave motion, sound, thermodynamics, Coulomb's Law, electric and magnetic fields, electrical circuits, and their connections to everyday life situations.
Calculus II (MA 102)	An introduction to integral calculus covering techniques of integration, arc length, areas, volumes, sequences and series, Taylor and Maclaurin series.
Introduction to Report Writing (ESP 102)	Empowering students to write academic and professional reports, focusing on both long and short reports, graphical representations, and the fundamentals of data collection and analysis.
Objective Writing (ARB 102)	Introducing students to objective writing in essays, reports, evaluations, summaries, scientific research, and administrative writing in Arabic.
Faith and Its consequences (ISL 101)	This course explains the roots of sound faith, characteristics of Islamic faith, the Islamic description of the universe, humanity, and life, and the reasons for increasing faith.
Introduction to Programming (CSE 101)	Introduces basic programming concepts, covering topics such as variables, expressions, decision structures, loops, functions, lists, files, exceptions, and an introduction to objects and classes.
Calculus III (MA 201)	Exploring calculus in multiple dimensions, covering topics such as parametric equations, polar coordinates, three-dimensional coordinate systems, vectors, partial derivatives, double integrals, and rectangular and polar coordinate integrals.
Industrial Process Control (CMET 204)	Introduces the fundamental principles of controlling industrial variables, including common systems such as PLC, DCS, and SCADA.
Probability and Statistics in Engineering and Sciences (MA 202)	Provides fundamental applications of probability and statistics in engineering and science fields, covering topics such as frequency distributions, measures of central tendency, probability rules, random variables, the Central Limit Theorem, confidence intervals, and hypothesis testing.
Academic and Professional Communication (ESP 201)	Developing students' oral and written communication skills in academic and professional settings. Includes preparing

	presentations, participating in meetings, writing memos, letters, minutes of meetings, cover letters, and resumes.
Professional Ethics (ISL 201)	Introducing students to the concept of ethics in Islam and its relation to faith, worship, relationships, and management and workplace ethics. Also includes a study of professional violations and how to handle them with examples from the Saudi labor system.
General Chemistry II (CHEM 211)	Introduces students to advanced topics in chemistry such as modern materials, quantum chemistry, chemical kinetics, equilibrium, acids and bases, spontaneous reactions, environmental chemistry, coordination chemistry, nuclear chemistry, and organic chemistry.
General Chemistry Lab (CHEM 212)	Provides laboratory experiments related to laboratory safety, properties of materials, quantum chemistry, chemical kinetics, equilibrium, acids and bases, environmental chemistry, coordination chemistry, nuclear chemistry, and organic chemistry.
Principles of Chemical Engineering (CL 201)	Introduces the basic principles for calculating process and energy variables, applying calculations related to mass and energy balances in reactive and non-reactive processes. The course also covers numerical methods for solving chemical engineering problems.
Elements of Differential Equations (MA 205)	Introduces students to the fundamentals of ordinary differential equations and their applications, including techniques for solving first-order equations, linear equations, higher-order differential equations, and series solutions.
Introduction to Data Science (CSE 201)	Introduces students to data science techniques and their application to practical engineering problems, covering topics in statistics, linear algebra, and optimization from a data science perspective.
Materials Science (CE 202)	Studies concepts in materials science for chemical engineering, including material structure, thermodynamics of condensed phases, kinetic properties, mechanics of materials, and the electrical, magnetic, and optical properties of materials, in addition to material processing.
Introduction to Chemical Engineering Computing (CE 203)	Introduces the fundamental principles of using software to solve chemical engineering problems, such as thermodynamics, mass and energy balances, fluid flow, and reaction engineering.
Introduction to Chemical Engineering Computing Lab (CE 204)	Provides students with hands-on experience in applying principles and techniques related to using software to solve problems in chemical engineering.
Fluid Mechanics (CE 205)	Studies concepts and theories fundamental to fluid mechanics and their applications in process engineering. The course includes properties of fluids, liquid pressure and constants, energy equations, momentum analysis, flow in pipes, and flow through packed beds.
Organic Chemistry (CE 206)	Introduces fundamental concepts and theories in organic chemistry, including organic compounds, synthesis, organic reactions, and characterization techniques.
Organic Chemistry Lab (CE 207)	Conducts laboratory experiments related to concepts and theories in organic chemistry, helping students apply theoretical knowledge practically.

Numerical Methods for Engineers (MA 301)	Covers topics such as roots of equations, systems of linear algebraic equations, numerical differentiation, interpolation, least squares analysis and regression, as well as numerical solutions for ordinary and partial differential equations.
Introduction to Artificial Intelligence (CSE 301)	Reviews the latest developments in artificial intelligence, including fundamental issues, search strategies, knowledge representation, basic machine learning, reasoning under uncertainty, and neural networks.
Literary Patterns (ARB 201)	Develops essential linguistic communication skills for students in their professional careers, contributing to enhancing their expressive abilities and competencies in skills such as speaking, presenting, persuading, and interacting effectively with others.
Thermodynamics in Chemical Engineering (CE 301)	Studies concepts and theories related to thermodynamics in processes relevant to chemical engineering, including a review of fundamentals and applications of the first and second laws of thermodynamics.
Heat Transfer (CE 302)	Covers concepts and principles related to heat transfer, including modes of transfer, differential equations, conduction, and convection under various conditions.
Mass Transfer (CE 303)	Studies concepts and principles related to mass transfer and its applications, including Fick's Law, permeability calculations, and mass transfer equations.
Business and Entrepreneurship (MS 301)	Introduces the fundamentals of business and entrepreneurship, focusing on identifying and evaluating business opportunities, developing business plans, and how to finance and manage businesses.
Human Rights in Islam (ISL 301)	Educates students about the concept of human rights and their advantages in Islam, in addition to the basic human rights in Islam and the associated doubts.
Separation Processes (CE 304)	Studies the fundamental concepts of separation processes, including liquid-vapor phase equilibrium, flash distillation, column distillation, absorption, and extraction.
Kinetics and Reactor Design (CE 305)	Covers concepts and theories related to kinetics and reactor design, focusing on chemical reaction kinetics and the basic design of reactors.
Chemical Engineering Lab I (CE 306)	Provides students the opportunity to conduct practical experiments in the fields of thermodynamics and transport phenomena (heat and mass) and momentum.
Physical Chemistry (CPE 307)	Introduces concepts and theories related to physical chemistry, including solutions, chemical equilibrium, chemical kinetics, and electrochemistry.
Physical Chemistry Lab (CE 308)	Covers laboratory experiments related to concepts and theories in physical chemistry.
Design Project I (CE 300)	Focuses on starting a project or research idea and forming a team to apply the acquired engineering knowledge and skills, emphasizing the development of solutions for real-world engineering problems.
Process Dynamics and Control (CE 401)	Covers concepts and theories related to process dynamics and control, including process control and theoretical models.
Plant Design and Economics (CE 402)	Studies process design and the associated economics, including estimating capital costs and designing heat exchangers.

Chemical Engineering Lab II (CE 403)	Allows students to conduct practical experiments in mass transfer, separation processes, and kinetics of chemical reactions.
Design Project II (CE 400)	Completes design projects initiated by students in Design Project I, where students will implement their projects based on the designated timeline.
Internship (CE 490)	Involves a 12-week industrial work period followed by two weeks of overall assessment
Polymer Technology (CE 404)	Covers the basic principles and mechanisms of homogeneous and heterogeneous polymerization processes, as well as the structure and properties of physical polymers and their relationships. It also includes the chemical, mechanical, and engineering properties of polymers and polymer processing techniques.
Water Desalination (CE 405)	Introduces thermal desalination and membrane principles, offering a fundamental understanding of various desalination techniques and their current and future technological significance and economic impact.
Corrosion (CE 406)	Covers the technical and economic aspects of corrosion problems, electrochemistry and its application to corrosion, and the various types of corrosion. Topics include pitting corrosion, crevice corrosion, stress corrosion cracking, as well as corrosion theories and protection methods.
Process Pollution Control (CE 407)	It covers types of pollution and their relationship to the ecosystem and their negative effects on human health. It includes industrial pollution control techniques, water quality measurement, and the design of physical, chemical, and biological treatment methods, along with waste management and site pollutant analysis.