

Table (1) A Plan of Study For B.Sc. In Civil Engineering

(First Year) Freshman Year

No.	Course No.	Course Title	Type	Weekly hours			Units
				Theoretical	Tutorial	Practical	
First Semester	ER101	Mathematics I	Math	3	1	—	3
	CE101	Engineering Mechanics I	Eng. Science	3	1	—	3
	CE103	Construction Materials I	Eng. Science	2	—	2	3
	ER103	Engineering Drawing	Eng. Science	2	2	2	3
	ER104	Computer Science	Eng. Science	2	1	2	3
	CE105	Engineering Geology	Eng. Science	2	—	1	2
	ER105	Applied Physics	Eng. Science	2	—	—	2
	UR101	Arabic Language Skills	Humanity	1	—	—	1
	Sum			17	5	7	20
			29				
Second Semester	ER102	Mathematics II	Math	3	1	—	3
	CE102	Engineering Mechanics II	Eng. Science	3	1	—	3
	CE104	Construction Materials II	Eng. Science	2	—	2	3
	CE106	Engineering and Structural Drawing	Eng. Science	1	—	3	2
	CE107	Engineering Statistics and Probability Theory	Eng. Science	2	2	—	2
	ER106	Applied Chemistry	Eng. Science	2	—	—	2
	CE108	Engineering Workshops	Eng. Science	--	—	2	1
	ER107	Technical English Language I	Humanity	2	—	—	2
	Sum			15	4	7	18
			26				

1st. Year

Course Number: ER101

Course Name: Mathematics I

Credit hours: 4

Pre-requisite: None

Course Contents:

This course covers :- Review for secondary stage Algebra (solve some example by using English language), Linear Equations and Simultaneous Linear Equations, Polynomial Equations, Logarithmic Equations, Indicial Equations, Hyperbolic Function, Inequalities , Absolute Value ,Function : Domain , Range , Method of Representation , Graphs of Function (Relations : Domain , Range , Symmetry) Analytical Geometry with Cartesian Coordinate in the Plane(Distance Formula , Midpoint Formula , Distance between point and Line , Parallel and Perpendicular lines , Angel between two lines) ,Trigonometric Function (Types of Trigonometric function , Trigonometric relation (Identities , domain , range and graphs of trigonometric function) ,The Invers of Trigonometric Functions (Properties and their graphs) , Limits , Continuous and Discontinuous Functions and their theorems , The Derivative , Rules of Derivatives , Derivatives of functions (Trigonometric, Parametric, Hyperbolic function) , Higher – Order Derivatives ,Chain Rule ,Implicit Differentiation, , The Derivatives as a Rate of Change .

Course Number: ER102

Course Name: Mathematics II

Credit hours: 4

Pre-requisite: Mathematics I

Course Contents:

This course covers : Integration (Antiderivatives) , Rules of Integration , Differential equations , Indefinite Integration , Area under a curve (as a limit of summation) and their finding by using definite integral ,First fundamental theorem of integral , Rules of definite integral ,Second fundamental theorem of integral (deferential of integral) , Approximate of definite integral ,Transcendental function ($\ln x$, e^x , a^x , \log^x) ,Method of integration : (by parts , partial fraction , reduction formulas, by substitution) and improper integrals , Applications on definite integral : Areas , volumes , surface area , arc length ,mean and root mean square values, centroids of shapes, second moment of area, Determinates and their applications .

Course Number: CE101

Course Name: Engineering Mechanics I

Credit hours: 4

Pre-requisite: None

Course Contents:

This course covers : Introduction: Basic Concepts, Types of Force Systems; Resolution of Forces (Rectangular and Non-Rectangular, Analysis in Plane, Analysis in Space; Moments and Couples: Moments in plane, Moments in Space, Principles of Moment, Couple and Force Transformation; Resultants of Force Systems; Equilibrium: Free body Diagram, Types of Supports and Reactions, Equilibrium of Pulleys; Frames: Analysis in Plane, Frames with Frictionless Hinges; Trusses: Analysis in Plane, Method of Joints, Method of Sections.

Course Number: CE102

Course Name: Engineering Mechanics II

Credit hours: 4

Pre-requisite: Engineering Machines I - Static

Course Contents:

This course covers : Friction: Coefficient of Friction, Analysis of Force Systems under the Effect of Friction ; Centroid : Centroids of Areas and Volumes, Regular Shapes, Composite Shapes ; Moment of Inertia: Regular and Composite Shapes, Products of Inertia, Moment of Inertia Transformation ; Rectilinear Motion : Position, Velocity and Acceleration Relationships ; Force Mass and Acceleration, Momentum.

Course Number: CE103

Course Name: Construction Materials I

Credit hours: 4

Pre-requisite: None

Course Contents:

This course covers: Introduction, engineering materials, behavior of basic materials including bricks, wood, steel, tiles and gypsum and their response under the stresses for theoretical and laboratory. It contains an introduction of construction materials engineering, such as mechanical properties for these materials, stresses, Hooks law, loads condition, materials classification, mechanical stresses, thermal stresses and stress-strain curve. The course also describe the non-mechanical properties for the materials such as work, resilience, plasticity, toughness, brittleness and stiffness.

Course Number: CE104

Course Name: Construction Materials II

Credit hours: 4

Pre-requisite: Construction Materials I

Course Contents:

This course covers: Gypsum products, cements type and products, bonding materials, lime, lime classifications, wood structure and ferrous and non-ferrous materials. The course also describe the properties for the materials such as timber, tiles, and stones. The laboratory works are also described in this course.

Course Number: ER103

Course Name: Engineering drawing

Credit hours: 6

Pre-requisite: None

Course Contents:

This course covers: Preface and preparation of instruments, lettering, fundamentals, dimensioning, geometric construction, Projections, isometric projection, sectional views, Missing view.

Course Number: CE 106

Course Name: Engineering and Structural Drawing

Credit hours: 4

Pre-requisite: Engineering drawing

Course Contents:

This course covers: Three dimensional Isometric; structural drawing : details of small house: ground floor plan, first floor plan, roof plan, foundation plan , sectional in walls, sectional in doors and windows , calculation of stairs and its sectional drawing with explain its different types.

Course Number: ER104

Course Name: Computer Science

Credit hours: 5

Pre-requisite: None

Course Contents:

This course covers: Introduction of principles of computer science, Identify computer parts, Computer Components, operating systems, Windows XP, computer applications, Microsoft Office word, Microsoft Office Excel, Microsoft Office power point .Computer Languages ;Low level language , assembly language and high level language, Algorithms and Flowcharts, how to design algorithms for the preparation of

programs the basics of programming using the QBasic language, Introducing QBasic, constants and variables, QBasic Fundamentals, input and output statements, Branching and Looping.

Course Number: CE105

Course Name: Engineering Geology

Credit hours: 3

Pre-requisite: None

Course Contents:

This course covers : Earth structure , earth crust, earthquakes, rocks and minerals, surface processes, weathering and erosion, nature and properties of engineering soils, geological structures, folds and faults, geological maps, Topographic maps

Course Number: CE107

Course Name: Engineering Statistics and Probability theory

Credit hours: 4

Pre-requisite: None

Course Contents:

This course covers : Engineering statics, data collection and its representation, frequency distribution, measures of central tendency, measures of spread, elementary of probability, some of discrete distributions, statistical hypothesis and their tests, elementary of probability, some of discrete distributions, statistical hypothesis and their tests.

Course Number: ER105

Course Name: Applied Physics

Credit hours: 2

Pre-requisite: None

Course Contents:

This course covers : Physics and measurement; Kinematics of motion of a single particle in one and two dimensions; Kinematics of projectile and circular motion. Dynamics of motion of a single particle and multiple objects in one and two dimensions and Newton's Laws; Free body diagrams; various types of mechanical forces; Application on the use of Newton's Laws. Work and energy; Conservative systems and the concept of potential energy; Conservation of mechanical energy. System of particles; Linear momentum;; Center of mass. Kinematics and Dynamics of rotational motion; Torque; Moment of inertia; Angular momentum.

Course Number: CE108

Course Name: Engineering Workshops

Credit hours: 2

Pre-requisite: None

Course Contents:

This course covers : Industrial safety, measuring instrument, micrometer instrument, method of filling, types of files, Separations, operation process on turner, drilling and toothed, general view on carpenter, kind of wood, carpentry machines, wood cutting and drilling, the concept of welding and view general welding, electrical arc welding, oxide Estelline welding, thermite modern welding method.

Course Number: ER 106

Course Name: Applied Chemistry

Credit hours: 2

Pre-requisite: None

Course Contents:

This course covers : Molecular composition and structure of organic compounds: determination and calculation of empirical and molecular formulae, pictorial treatment of hybridization. Organic Reactions: Bond formation and fission, classification of reagents and reactions, reaction intermediates: Carbocations, free radicals, carbanions. Hydrocarbons: (aliphatic, alicyclic and aromatic), structure and nomenclature. Homologous series, and gradation of properties, preparation, reactions.

Course Number: UR101

Course Name: Arabic Language Skills

Credit hours: 1

Pre-requisite: None

Course Contents:

هذا الفصل يغطي : نشأة اللغة العربية، أنواع الهمزة، أسلوب النداء، المبتدأ والخبر، المعجم العربي، الأفعال الخمسة، نصب الفعل المضارع، الأفعال والفاعل ونائب الفاعل والمفعول به، دراسة نص قرآني وتفسيره وعلامات الترقيم، أخطاء لغوية شائعة، التاء المربوطة والتاء المبسوطة، كان وأخواتها، إن وأخواتها، ظن وأخواتها، المفرد والمثنى والجمع، العدد والمعدود، أسلوب الشرط، الألف المدودة والألف المقصورة، دروس في كتابة السيرة، الهمزة وأنواعها، المشتقات (أسم الفاعل، أسم المفعول)، حروف الجر، الضاد والظاء، الأسماء الخمسة، صيغة المبالغة، الصفة المشبهة، أسم التفضيل، أسم الآلة، أسم المرة وأسم الهيئة، مقدمة في علم الإنشاء، التعبير الأداعي والتعبير المنطقي، دروس تطبيقية في المفردات الهندسية.

Course Number: ER 107

Course Name: Technical English Language

Credit hours: 2

Pre-requisite: None

Course Contents:



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Civil Engineering Department



This course covers: **Grammar** (nouns, pronouns, questions and short answers, possessive adjectives, possessive's, adjective + noun, present simple, question words, prepositions, past simple, past simple-regular and irregular verbs, adverbs, present continuous, future plans). **Vocabulary, Reading, Writing, Listening and speaking skills.**
