



The syllabus of first year - First semester.

UREQ111- English Language (Th.: 2 Hrs., Tut. : -- , Prac.:--)

Reading Comprehension I, Structural Items: Present Simple, Present Continuous, Past Simple, Past Continuous, Present Perfect, Future Simple, Conditional Statements (Types I, II, III), Indirect Questions, Simple Statements, list of confusing words in English language.

UREQ112- Computer Programming I (Th.: 2 Hrs., Prac. : 2 Hrs., Tut.:--)

Introduction to Computer Hardware and software, computers types, computer parts, CPU, Memory and storage. Introduction to windows Desktop, the taskbar, moving windows, minimize and maximize, Exiting a program, the start button, multi-tasking with windows, creating a new folder, copy and move a file, rename a file and folder, delete a file , the recycle bin. Introduction to Microsoft Word (Menu bar, standard toolbar, formatting toolbar, change in view, save and save as, new blank document, open document, print, header and footer, drawing objects, textbox, tables, symbols). Introduction to Microsoft Excel (Spreadsheet, rows and columns, cell, entering and editing data, insert and delete row or column, working with simple and complex formula, functions). Introduction to Microsoft PowerPoint (Changing view, create a blank presentation, inserting pictures and AutoShape, Animating slides, Adding a transition). Introduction to Internet.

MATH110 - Mathematics I (Th.: 2 Hrs., Prac. :- , Tut.:1 Hr.)

Sets, Relations, Intervals, Functions, Range and Domain, Absolute Value, Coordinates and Graphs in Plane, Slope and Equation of Line, Trigonometric Functions (Identities, Domain, Range, Graphs,...), Limits, Limit Laws, Sandwich Theorem, Infinite Limits, Continuity, L'Hopital's Rule, Differentiation, Definition, slopes and Tangent lines, Differentiation rules, Derivatives of Trigonometric Functions, Chain Rule, High Order Derivatives, Implicit Differentiation, maxima and minima, Derivative as a Rate of Change, Integration, Definition, Properties, Integration of Trigonometric Functions, Finite Sums and Sigma Notation, Definite Integral, Definite Integral Rules, Fundamental Theorems of Integration, Applications of Definite Integral, Area Between Curves, Volume, Arc Length, Surface Area of Revolution, Complex Numbers, Definition, Properties, Arithmetic Operations, Argand Diagrams, Euler's Formula, De Moivre's Theorem, Roots of Complex Number.

CREQ110 - Engineering Drawings I (Th.: 1 Hrs., Prac. : 3 Hrs., Tut.:--)

Introduction to Engineering Drawing: Standards of Drawing Sheets, Types of Lines and Lettering, Use of Drawing Instruments, Principles of Geometrical Constructions: Straight Line Operations, Curved Line Operations, Tangency Construction, Drawing of Contour Lines of Parts, Dimensioning, Orthographic Projection: Drawing of Complete Orthographic Projection. Introduction to Graphical Representation: Projection of Points, Projection of Straight Lines, Determination of True Length of Straight Lines, Determination of Line Inclination with the Main Planes.

CREQ111 - Workshop Technology (Th.: --, Prac. : 3 Hrs., Tut.: --)

Principles of Safety in Workshop and Laboratories:- Cutting: Cutting Tools, Measuring Equipment, Sawing, Drilling, Turning Milling, Grinding.- Welding: Equipment, Arc Welding, Gas Welding, Productive Sample- Electricity: Tools and Equipment, Electrical Symbols, Transformers, Electrical Circuit Fundamentals Practices.- Carpentry: Tools and Equipment, Join Half on Half Practice, Cylindrical Shaft Practice, Productive Sample.- Plumbing: Tools and Equipment, Uniform Pentagonal Practice, Joining by Plumbing, Productive Sample.- Filings: Tools and Equipment, Manual Filings, Handsaw, Internal and External Manual Tapping.

BMER110 – Chemistry (Th.: 2 Hrs., Prac. : 2 Hrs., Tut.:--)

Measurement and Properties of Matter, Metric System, Unit Conversion, Significant Figures, Characteristics of Matter, Gases and its application in medicine, Characteristics of Gases, Daltons law, Boyels law, Charles law, Solutions, Molarity and normality, Isotonic solutions, Precipitation Analysis, Dilution, Osmosis and Osmotic Pressure of solutions, Acids and Bases, Ionization of Water, PH and its measurement, Buffers solution, Blood buffers, Acid-Base titration, Acid-Base Balance, Nuclear Chemistry, Radioactivity, Detection devices, Physiological effects of radiation, Isotopes, Uses of radioisotopes in medicine, Isomerism (Stereochemistry).

BMER111 - Electrical Circuits I (Th.: 2 Hrs., Prac. : 2 Hrs., Tut.: 1)

DC Principles, Ohm's law, power, efficiency and energy, Series DC Circuits, Kirchhoff's Laws, voltage divider rule, relative potential, Parallel DC Circuits, current divider rule, open and short circuits, series-parallel DC networks, ladder networks, Electrical Circuit Analysis Methods, current sources, sources conversion, Branch- Current Method, Mesh Analysis Method, Nodal Analysis Method, bridge networks, star-delta and delta-star circuits conversion, DC Network Theorems, Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power Transfer Theorem, DC Machines, electric field and capacitor.

The syllabus of first year - Second – semester.

UREQ120- Arabic Language I (Th.: 1 Hrs., Tut. : -- , Prac.:--)

بناء الكلمة (الصرف)، الوحدات الصرفية /تعريفها، أنواعها، بناء الجملة العربية ونظامها (النحو)، الابتداء ونواسخه، الجملة الاسمية: المثنى والملحق به، الأسماء الخمسة، جمع المذكر السالم، جمع المؤنث السالم، الاعراب ظاهراً ومقدراً ومحلياً، الأسماء المنصوبة /المفعول به، المفعول المطلق، المفعول فيه ظرف الزمان والمكان، المفعول معه، الأسماء المبنية /أسماء الإشارة، الأسماء الموصولة، أسماء الاستفهام، أسماء الشرط، الجملة الفعلية /بناء الفعل الماضي، بناء فعل الأمر، الفعل المضارع :اعرابه وبنائه، الضمائر /المنفصلة والمتصلة والمستترة (جوازاً ووجوباً).
التطبيقات: المعجم اللغوي للغة القرآن الكريم، لغة الشعر العربي القديم، لغة الشعر العربي المعاصر.

University of Babylon
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UREQ122- Computer Programming II (Th.: 2 Hrs., Prac. : 2 Hrs., Tut.:--)

Introduction to Computer programming (Classification of Programming Languages, compiler, algorithm, flowchart). Introduction to Visual Basic (OOP, IDE, Create a Windows application, forms Designer and code editor, controls toolbox (button, label and textbox), properties window, read and write, variables , constants, Mathematical Operations, Conditional Operators, Logical Operators, If and Select Case Statement, Console Application, Loop, One and Two-dimensional arrays, Math Functions, Functions.)

MATH120- Mathematics II (Th.: 2 Hrs., Prac. : -- Hrs., Tut.: 1)

Calculus of Transcendental Functions, Inverse Functions, Inverse Trigonometric Function (Identities, Domain, Range, Graphs, Derivatives and Integrals), Natural Logarithm Function (Definition, Properties, Domain, Range, Graphs, Derivatives and Integrals), Logarithmic Differentiation, Exponential Function (Definition, Properties, Domain, Range, Graphs, Derivatives and Integrals), Hyperbolic Functions (Definition, Identities, Domain, Range, Graphs, Derivatives and Integrals), Inverse Hyperbolic Functions (Definition, Identities, Domain, Range, Graphs, Derivatives and Integrals), Techniques of Integration, Basic Integration Formulas, Integration by Parts, Trigonometric Integrals, Trigonometric Substitutions, Method of Partial Fractions, Polar Coordinates (Definition and Properties), Polar Equations and Graphs, Symmetry Tests for Polar Graphs, Equations Relating Polar and Cartesian Coordinates, Plane Areas in Polar Coordinates, Area Between Two Polar Curves, Length of a Polar Curve, Matrices and Determinants (Definitions, Notations and Arithmetic Operations), Inverse of Matrix, Cramer's Rule.

CREQ120 - Engineering Drawing II (Th.: 1 Hrs., Prac. : 3 Hrs., Tut.:--)

AutoCAD

Review of Projection Drawing, Development of Isometric Drawing, Development of Sectional Views, Development of Assembly Drawing. Determination of the Shortest Distance Between Two Straight Lines in Space, Representation of Planes (Methods of Representation), Determination of Planes Inclination Angles, Intersection of Planes, Determination of Points Location on Specific Planes.

PHYS120- Physics (Th.: 2 Hrs., Prac. : 2 Hrs., Tut.:--)

Units and Physical Quantities, SI and non SI units, standard prefixes, conversion factors, Light in Medicine, light as array, properties of light, reflection and refraction, multiple element system, application of visible light in medicine, application of ultraviolet light in medicine, application of infrared light in medicine, Sound in Medicine, general properties of sound, units, the intensity of the sound wave, Doppler effects, application in medicine, Pressure, definition, units, Boyle's law, Pascal principle, hydraulic systems, Archimedes principle, buoyant force, pressure in the human body, measurement of blood pressure, Temperature and Heat, temperature and phases of mater, temperature scales and thermometer, method of heat transfer (conduction, convection, radiation), effects of heat on the body, diagnostic and therapeutic uses of heat.

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BMER120 Biochemistry (Th.: 2 Hrs., Prac. : 2 Hrs., Tut.:1)

Introduction and Carbohydrates metabolism, the definition of biochemistry, the definition of clinical biochemistry, the definition of metabolism (anabolism, catabolism), Digestion of Carbohydrates, The fate of glucose in living organisms (glycolysis, gluconeogenesis, glycogenesis, glycolysis), Citric acid cycle, ATP formation, Oxidation, Phosphorylation, Lipid Metabolism, Digestion, Glycerol, Triacylglycerols, Fatty acids, Ketone bodies, Lipid profile, Proteins Metabolism, Digestion of proteins, Amino acid, urea cycle, Enzymes, The interrelationship and control of metabolism, Interrelationships among metabolic pathways, Major metabolic activities of the various organs in humans, Control of metabolism, Blood, Diseases due to errors in metabolism, Diabetes and Hyperlipidemia, Hormone, Classification, How act, their abnormalities, Minerals, Vitamins and their abnormalities.

BMER121 Electrical Circuits II (Th.: 2 Hrs., Prac. : 2 Hrs., Tut.:1)

Magnetic field and inductor, AC Principles, general alternating waveforms, sine wave, phasor relations, average and effective values, complex numbers, representation of sinusoidal waveform in phasor domain and time domain., Series AC Circuits, impedance and phasor diagram, voltage divider rule, response of RLC to voltage and current, response of RLC to frequency, Parallel AC Circuits, AC Power; power triangle and power factor, Electrical Circuit Analysis Methods, Mesh Analysis Method, Nodal Analysis Method, bridge networks, Star Delta conversion, Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power Transfer Theorem, series resonance; quality factor, Parallel Resonance, Transformers, AC Machines.