Ministry of Higher Education and Scientific Research
University of Technology
Building and Construction Engineering Department
Undergraduate Study Syllabus 2015/2016
First Year - First Semester
First Year

	Subject	Hrs./week			Units
		Theo.	Tut.	Lab.	
B.E.1203	**Engineering Mechanics (1)**	3	1		3
B.E.1201	**Mathematics (I)**	3	1		3
B.E.1211	**Building Materials Technology (1)**	2		1	3
B.E.1207	**Engineering Drawing (1)**	1		3	2
B.E.1209	**Engineering Geology (1)**	1	1		1
B.E. 1101	**Fundamental of Computer Science**	1		2	2
B.E. 1206	**Physics**	1	1		1
B.E. 1102	**Public Freedom and Democracy**	1	1		1
B.E.1106	**Arabic Language**	1	1		1
B.E.1104	**Workshops (1)**	1		3	2
	Total	15	6	9	19
		30			

	Subject	Hrs./week			Units
		Theo.	Tut.	Lab.	
B.E.1203	الميكانيك الهندسي (١)	3	1		3
B.E.1201	رياضيات (١)	3	1		3
B.E.1211	تكنولوجيا مواد البناء (١)	2		1	3
B.E.1207	الرسم الهندسي (١)	1		3	2
B.E.1209	الجيولوجيا الهندسية (١)	1	1		1
B.E. 1101	اساسيات في علم الحاسوب	1		2	2
B.E. 1206	فيزياء	1	1		1
B.E. 1102	الحريات العامة والديمقراطية	1	1		1
B.E.1106	اللغة العربية	1	1		1
B.E.1104	معامل (١)	1		3	2
	Total	15	6	9	19
		30			

1

B.E. 1201 Mathematics I	Theory: 3hrs./ Week Tutorial: 1hr./ Week	
1- Revision: Trigonometry, graphs, coordinates, equations of straight line and circle, function domain, range, inverse of a function, absolute value, limits, definition and theories, lim (sin ϕ) / ϕ, infinity, differentiation and integration of algebraic function.		20
2- Matrix addition and multiplication Inverse of square matrix		12
3- Determinants: definitions and properties, solution of a system of equations (Cramer's Rule).		6
4- Transcendental function (trigonometric, inverse trigonometric, natural algorithmic, exponential and power functions): definitions, properties, differentiation and integration graphs.		14
5- Hyperbolic functions: definitions, properties, derivatives and integrals.		8

B.E. 1203 Engineering Mechanics 1	Theory: 3hrs./ Week Tutorial: 1hr./ Week	
Statics: 1- Introduction to scalar and vector quantities, forces, moments, couples.		16
2- Resultants of force systems.		16
3- Equilibrium: Free-body diagrams, equilibrium of bodies by planar and three dimensional system of forces with applications.		16
4- Friction: Coefficient of friction, angle of friction, applications.		12

B.E. 1206 Physics	Theory: 1hrs./ Week Tutorial: 1hr./ Week	
1-Measurements (Length, time and mass), Units		2
2-Motion One dimension, average velocity, laws of motion, circular motion, constant acceleration , free falling and projectile motion analysis		10
3-Electricity Current, potential and resistance, conductors, insulators and semiconductor, electrical circuits, simple electrical circuits, capacitance and dielectric, electric field		14
4-Gauss law Application, magnetic field		4

B.E. 1207 Engineering Drawing (1)	**Theory: 1hr./ Week** **Practical: 3hr./ Week**	
1- Introduction: definition of engineering drawing, applications of engineering drawing in industrial fields.		4
2- Graphic instruments and their use.		4
3- Types of Arabic and Latin lettering and their drawing applications		8
4- Drawing scales of drawings and paper sizes		4
5- Drawing of all types of lines and their drawing applications		12
6- Drawing of some simple types of decorations.		8
7- Drawing of ellipse using different methods and drawing of different tangents and curves		20

B.E. 1209 Engineering Geology (1)	**Theory: 1hr./ Week** **Tutorial: 1hr./ Week**	
1- Introduction: Relationship between geology and civil engineering, earth structure (crust, mantle, core), geological cycle.		4
2- Minerals: -Minerals: formation, classification, crystal forms, identification.		4
3- Rocks: -Rocks: classification, nature, texture, igneous, sedimentary and metamorphic rocks, natural rock cycle.		4
4- Soil: Weathering, soil formation, classification, transported and residual soils, mineral composition, soils of Iraq.		4
5-Geological materials used in construction		4
6- Structural geology: Types of earth movements, basic definitions, folds, faults, joints, and their types.		4
7- Topographic and geological maps: General concepts, importance, components, construction of each map, examples and applications.		6

B.E. 1211 Building Materials Technology 1	**Theory: 2hr./ Week** **Practical: 1hr./ Week**	
1-Structure of matter: Atomic structure, types of bonding.		2
2- Mechanical properties of materials: Stress, deformation, strain, Hooke's law, general expression for strain, toughness, ductility, and thermal properties.		14
3- Types of materials: Metallic materials, non metallic materials and ceramic materials.		2
4-Tests: Tensile, compressive, flexural, torsion, impact, hardness, creep and fatigue.		12
Laboratory Tests		
1-Introduction to laboratory tests How to deal with laboratory (Apparatuses, materials and equipments) How to write report How to analysis results and to reach the conclusion		1
2- Clay bricks: Shape and dimensions, efflorescence, water absorption, compressive strength.		4
3-Terrazo tiles: Shape and dimensions, water absorption, modulus of rupture.		6
4- Steel: Tensile test and modulus of elasticity.		4

B.E. 1101 Fundamental of Computers Science	**Theory: 1 hr./ Week** **Practical: 2 hrs./ Week**
1- Computer fundamentals: (Computer components, types, operations, hardware units, software types), numeric systems.	2
2- Introduction to WINDOWS, Desktop, desktop icons, change desktop properties, taskbar and toolbars, start menu basics, computer screen, finding files and folder, context menu, managing files and folder, operation in window, control panel features.	1
3- Introduction to Internet (computers network, types of network, network categories, network hardware, internet Protocols, use a firewall, world wide web, internet explorer elements, E-male application	2

4- Microsoft office
    • Microsoft World
    • Microsoft Excel
    • Microsoft Power Point
	10

B.E. 1102 Public Freedoms and Democracy	Theory: 1hr./ Week Tutorial: 1hr./ Week	
١-مفهوم الديمقراطية	٢
٢-تاريخ الديمقراطية	٢
٣-الديمقراطية عند العرب قبل الاسم و بعده	٢
٤-الديمقراطية في الفكر العربي الحديث	٢
٥-مباديء الديمقراطية	٢
٦-مزايا الديمقراطية و نقد الديمقراطية	٤
٧-صعوبات تطبيق الديمقراطية	٢
٨-أشكال الديمقراطية (الديمقراطية المباشرة و شبه المباشرة)	٢
٩-الديمقراطية التمثيلية (النيابية)	٢
١٠-نشأة البرلمان	٢
١١-الفساد الاداري و تعريفه	٢
١٢-أسباب الفساد الاداري	٢
١٣-علاج الفساد الاداري	٤

B.E. 1106 Arabic Language	Theory: 1hr./ Week Tutorial: 1hr./ Week	
١-الحروف الشمسية و القمرية	٢
٢-الأخطاء اللغوية الشائعة	٢
٣-قواعد العدد	٢
٤-علامات الترقيم / التنقيط	٢
٥-كتابة الهمزة	٢
٦-كتابة الضاد و الظاء	٢
٧-طريقة الكشف عن الكلمات في المعاجم العربية	٤
٨-البلاغة و التطبيق/ التشبيه	٢
٩-الاستعاره و المجاز	٢
١٠-دراسة و ضبط و قراءة سورة مريم	٢
١١-نصوص أدبية	٢
١٢-الشعر الحر / نازك الملائكة	٢
١٣-تطبيقات عملية للمادة	٤

B.E. 1104 Workshops	**Theory: 1hr./ Week** **Practical: 3 hrs./ Week**
The workshop training program is designed to satisfy the following objectives: • Teaching safety rules and regulations on-site in an industrial environment. • Proper use of working tools, instruments, and machines. • Introducing basic workshop practices, production, labor, and time-requirements of workshop operations. The students are introduced to training programs in three workshops: electrical, welding and forging, The student is to spend 12 hours of training in every workshop.	