



University of Al Mosul
College of Engineering
Computer engineering department

Courses
for the academic year
2020-2021

Prepared By

University of Mosul/ College of Engineering / Courses

The first level for the academic year 2020-2021

Computer Engineering Department

First academic level (first semester)									
Notes	Course Code	prerequisite	Number of units	The number of working hours	Theoretical number of hours	Course Name		Requirement type Compulsory- (optional)	Requirement name
						In English	In the Arabic language		
	UOMC101	-	3	-	3	English Language	اللغة الانكليزية	Mandatory	University requirements
	UOMC102	-	3	2	2	Computer	الحاسوب	Mandatory	
	UOMC103	-	2	-	2	Human Rights	حقوق و حريات	Mandatory	
	ENGC121	-	3	-	3	Calculus I	الرياضيات I	Mandatory	college requirements
	ENGC123	-	1	3	-	Engineering Drawing	الرسم الهندسي	Mandatory	
Compulsory for students of the department	ENGC135	-	2	-	2	Engineering Work Shop	الورشة الهندسية	Optional	
	EDLA101	-	1	3	-	Electrical & Digital Lab I	مختبر كهربائية ومنطق 1	Mandatory	Department requirements
	PHYS102	-	3	-	3	Physics	الفيزياء	Mandatory	
	DILO103	-	3	-	3	Digital Logic	المنطق الرقمي	Mandatory	
			21	8	18	Total hours and units of the first semester			



Course Objectives:

This course develops further knowledge of the grammar and of essential vocabulary in order to lead the students to an advanced level of proficiency. Emphasis is placed on developing listening, speaking, reading and writing skills through an integrated approach. It focuses on grammar and fundamental writing skills.

By the end of the course, students are expected to: 1. Understand the main ideas of a variety of written and spoken texts 2. Participate effectively in a short conversation using appropriate language 3. Produce a range of text types in the form of a logical and cohesive paragraph 4. Select appropriate vocabulary to talk about feelings, opinions and experiences. 5. Recognize, understand and use a number of phrasal verbs and collocations. 6. Use effective organizational strategies that include introductions, paragraphs, transitions, and conclusion

Course Details:

Article	Week
Grammar	1 - 4
Vocabulary	5 - 8
Everyday English	9 - 13

Text Books

New Headway Beginner Fourth Edition Student's Book and iTutor Pack, View larger, Part of New Headway Fourth Edition, By: Liz Soars & John Soars, ISBN:9780194771047, 2013



Course Objectives:

Computing Fundamentals and Office 2013 applications will be covered during this course. Computing Fundamentals focuses on hardware and software and how they work together. The course includes activities and exercises that guide students to explore the Windows operating system, change settings, and customize the desktop. Students also learn how to manage files and folders. On the other hand, the Key Applications focuses on two of the Microsoft Office 2013 applications: Word and Excel. The course explains the purpose of commonly used software features and step-by-step demonstrations on how to use those features. Students will practice mastering those features to complete typical day-to-day tasks at home, school, and work.

Course Details:

Article	Week
(a) Computer Fundamental	
1- Computers and Operating System	1 - 2
2- Software and Hardware Interaction	3 - 4
3- Windows File Management	5
4- Operating System Customization	6
5- Computer Hardware	7 - 8
(b) Key Applications	
1- Exploring Microsoft Office 2013	9
2- Getting Started with Word Essentials	10
3- Editing and Formatting Documents	11 - 12
4- Getting Started with Excel Essentials	13
5- Organizing and Enhancing Worksheets	14
6- Creating Formulas and Charting Data	15

Text Books:

2015 Computer Literacy BASICS: A Comprehensive Guide to IC3 Connie Morrison, Dolores Wells, Lisa Ruffolo
 Cengage Learning. ISBN: 128576658X
 IC3 GS5 Certification Guide Using Windows 10 & Office 2016 Print ISBN: 978-1-55332-463-8



Course Objectives:

Among the objectives of the human rights course is to raise awareness of the Iraqi woman (the mother) about her role in the field of exercising her role within her small family, which serves as a micro-community and to exercise her role towards her children by granting them (children’s rights), which are included in the framework of (human rights) because the child is the most important pillar and infrastructure In the Iraqi society, which serves as the first nucleus for the establishment of a healthy and healthy society, free from psychological complexes and behavioral disorders, and raising the awareness of the mother about her duties towards her children, not to practice beating and psychological and physical violence, and to treat them in a sound and humane manner, and that the circumstances and daily hard work do not reflect on her behavior towards her children, and this in my opinion is one of the most important goals Which I seek to consolidate when teaching the subject (Human Rights), which considers the rights of the child as one of the most important points and pillars, In addition to directing the father to treat her children with dignity and produce a healthy child mentally, physically and psychologically. Introducing the Iraqi human rights stipulated in the Iraqi constitutions, especially the permanent Iraqi constitution of 2005. Awareness of individuals about the types of rights they enjoy, such as the first generation of rights represented by civil and political rights and the second generation Of rights such as economic, social and cultural rights. Activating the role of civil society institutions in the field of Iraqi human rights. Introducing human rights and spreading a culture of awareness among individuals of the types of rights they enjoy as citizens.

Course Details:

Article	Week
What is right and what is human	1
What are human rights	2
Historic Human Rights in Iraqi Civilizations, in Greek Civilization, Roman and Persian Civilization	3
Historical Human Rights in the Middle Ages Feudalism, the Church, and the Institution of Monarchy (King)	4
Historical Human Rights in the Middle Ages Feudalism, the Church, and the Institution of Monarchy (King)	5

Human rights in law legislation	6
revolutions of the west	7
East revolutions and human rights	8
Human rights in the Universal Declaration of 1948	9-10
Economic, social and cultural human rights	11
modern human rights	12
Regional recognition of human rights	13
European Convention on Human Rights 1953	14
The Arab Organization for Human Rights 1998	15
Text Books:	
كتب المقرر العلمي الاساسية ، مصادر خارجية ، ونصوص ومواثيق الامم المتحدة في مجال حقوق الانسان والاعلان العالمي الصادر عام 1948. وفي ادناه المصادر المستخدمة من قبل التدريسي د.عباس عبد الامير ابراهيم العامري د.فراس جرجيس د.شيماء عبد الستار الليلة د.محمود رياض مفتاح د.حافظ علوان الدليمي ا.د.ماهر صالح علاوي الجبوري	



Course Objectives:	
To present the fundamental concepts of multivariable calculus and to develop student understanding and skills in the topic necessary for its applications to engineering, and science.	
Course Details:	
Article	Week
Prerequisites for Calculus	3
Coordinates and Graphs in the Plane	
Slope, and Equations for Lines	
Functions and Their Graphs	
Shifts, Circles and Parabolas	
A Review of Trigonometric Functions	
Limits and Continuity	4-5
Limits	
The Sandwich Theorem and $(\sin \theta)/\theta$	
Limits Involving Infinity	
Continuous Functions	
Derivatives	6 - 8
Slope, Tangent Lines, and Derivatives	
Differentiation Rules	
Velocity, Speed and Other Rate of Change	
Derivatives of Trigonometric Functions	
The Chain Rule	
Implicit Differentiation and Fractional Powers	
Linear Approximations and Differentials	
Applications of Derivatives	9-12
Related Rates of Change	
Maximal, Minima and the Mean Value Theorem	

Curve Sketching with , Graphing Rational Functions-Asymptotes and Dominant Terms Optimization	
Matrices	13-15
Operation on matrices, Equal matrices, Addition and Subtraction of matrices, Multiplication by scalar, Multiplication of matrices, Transpose of a matrices. Adjoin of a square matrix. Determinants, Properties of determinants, Singular matrix. Solution of system of equations by matrix inversion. Gamer's rule to solve the system of equations. Gaussian elimination	
Text Books:	
1-Calculus by Thomas and Finny.	
2- Calculus and Analytic Geometry by Thomas and Finny	



Course Objectives:	
<p>An engineering drawing is a type of technical drawing used to define the requirements for engineering products or components. Typically, the purpose of an engineering drawing is to clearly and accurately capture all geometric features of a product or component so that a manufacturer or engineer can produce the required item. It may also describe the process of making the item, may be used to convey engineering ideas during the design process, or may provide a record of an existing item.</p>	
Course Details:	
Article	Week
<p>Introduction and familiarization of students with engineering drawing, which includes the following: Learn about engineering tools and how to use them. Types of pens used in drawing geometric shapes. Board layout and address field numbers. - How to deal with the engineering board and the engineering board and how to install it on the board. Types of lines in engineering drawing: visible lines, hidden lines, center lines, dimensional lines, and segment lines. Drawing an applied painting on the subject: ----- Painting No . (1) - HW1</p>	<p>1 - 2</p>
<p>Various engineering operations: Introducing the scale of drawing and its types: civil, mechanical, and the scale of magnification and reduction. Teaching students how to apply and draw the following engineering operations: • Draw a straight line parallel to a known straight from a point outside it. Drawing a bisector for a given line Drawing tangents and identifying points of tangency and how to locate them Drawing a known arc so that it touches two known straight lines between them Angle:</p>	<p>3 - 4</p>

right, acute and obtuse •. Arc a circle on the outside Finding the center of a given arc touches the arc of a known circle and passes through a point outside it. • Draw regular geometric shapes: equilateral and polygon, pentagon and hexagon. Drawing the inverse figure • Draw three applied paintings on the subject. Plate No. 2 (W.C., Plate No. 1,4) W.H..	
The theory of vertical projection of objects: Types of projection in drawing and its practical importance Types of projections resulting from vertical projection adopted in the projection of different geometrical objects Frontal, vertical and side projections right and left side How to arrange and draw the required projections for an object on the drawing board Drawing three applied paintings on the subject, plate No. (4----) WC, plate No. (6,5W.H)	5 - 6
Drawing three-dimensional models: types of three-dimensional models and their practical benefits * Isometrics * Drawing measurement axes and how to put dimensions on them * Linking between the given projections and the process of imagining and drawing the symmetrical body Drawing three application panels on the subject Panel No. 1--- (WC, Plate No. 7,8W.H	7 – 9
Drawing the third omitted projection of the body: • How to deduce the omitted projection from two known locations of the body • Drawing the omitted projection of bodies with inclined surfaces • Drawing two applied paintings on the subject - plate No. WH	10 – 11
Geometric sections: the rules followed in cutting objects * Marking cut areas and leaving blanks and uncut parts * Abnormal areas during cutting that were not marked: inclined and vertical supports and appendages in the body Drawing two applied paintings on the subject ---- Plate No. (7) --- (WC, plate number)44W.H	12 - 13
Text Books:	
Engineering Drawing and Graphic Technology, By : French & Vierk , 12th edition, 1978	



Course Objectives:	
This course is designed to provide students with a working knowledge of computer concepts and essential skills necessary for work and communication in today's society. Students will learn safety, security, and ethical issues in computing and social networking.	
Course Details:	
Article	Week
Introduction to Personal Computer Hardware part1	1
Introduction to Personal Computer Hardware part2	2
PC Assembly	3
PC Assembly	4
Advanced Computer Hardware	5
Advanced Computer Hardware	6
Preventive Maintenance and Troubleshooting	7
Preventive Maintenance and Troubleshooting	8
Networking Concepts	9
Networking Concepts	10
Laptops and Other Mobile Devices	11
Laptops and Other Mobile Devices	12
Printers	13
Windows Installation	14
Windows Installation	15
Text Books:	
IT essential courses	



Course Objectives:	
To understand the correct function of electrical parameters and calibration of voltage, current, measurement of electrical characteristics of resistance, inductance and capacitance of a circuits through appropriate methods. Traditional digital logic design courses focus on logic gates, the purpose of the lab course is to have the students develop practical design skills.	
Course Details:	
Article	Week
Reception of students and introduction to the laboratory	1
Experiment 1: Basic information	2 - 3
Experiment 2: Ohm's law and physical properties of conductors	4 - 5
Experiment 3: Oscillation	6 - 7
Experiment 4: Alternating current circuits and measuring the phase difference angle	8 - 9
Experiment 5: Karchov legal	10 - 11
Experiment 6: Phase representation of voltages and currents in alternating current circuits	12 - 13
Text Books:	
Handbook of lab experiments prepared by laboratory staff	



Course Objectives:	
Study the basics of manufacturing devices.	
Course Details:	
Article	Week
Atomic Structure and types of materials.	1
Effect of gravitational, effect of electric field in the atom.	2
Energy bands in the atom.	3
Crystalline structure and bond types.	4
Fermi-dirac function and Fermi level.	5
Exam	6
Introduction to conductors.	7
Mobility and conductivity in conductors.	8
Resistivity and current density in conductors.	9
Introduction to semiconductors.	10
electron distribution in semiconductors.	11
p-type and n-type of semiconductors.	12
Mobility and conductivity in semiconductors.	13
Resistivity and current density in semiconductors.	14
Exam	15
Text Books:	
1- فيزياء الإلكترونيات، وكاع الجبوري ، 2- الخواص الكهربائية والمغناطيسية للمواد، وكاع الجبوري	
3- Electronic Devices, Floyd, 4- Material Science, Kakani	



Course Objectives:	
Giving a thorough understanding of the binary system, Boolean algebra, Karnaugh map, Sequential Circuit, and their applications.	
Course Details:	
Article	Week
Number System	1
Boolean Algebra	2 – 3
Logic Circuit	4 – 5
Minimization by Karnaugh maps	6 – 7
Digital Components: Adders, Comparators, Decoder, Multiplexer,..etc...	8 – 11
Sequential cct.: Counters, registers.	12 – 15
Text Books:	
1- Digital Fundamental, 10th Edition, Thomas L. Floyd,UBS,2011.	
2- Digital Design, Moshe Mano, prentice Hall,2002	