



University of Al Mosul
College of Engineering
Computer engineering department

Courses
for the academic year
2021-2022

Prepared By

University of Mosul/ College of Engineering / Courses

The third level for the academic year 2021-2022/Computer Engineering Department

المستوى الدراسي الثالث (الفصل الاول)									
الملاحظات	رمز المقرر	المعهد ان وجد	عدد الوحدات	عدد الساعات العملية	عدد الساعات النظرية	اسم المقرر		نوع المتطلب (اجباري - اختياري)	اسم المتطلب
						باللغة الإنكليزية	باللغة العربية		
			2	-	2	English language – Intermediate	اللغة الانكليزية – المتوسط	اجباري	متطلبات الجامعة
	CONE302		4	2	3	Computer Network I & Data Communication	شبكات الحاسوب I و تراسل بيانات	اجباري	متطلبات القسم
	SISY304	رياضيات هندسية II	3	-	3	Signals & Systems	الاشارات والانظمة	اجباري	
	COAR305	تصميم نظم رقمية	3	-	3	Computer Architecture I	معمارية الحاسوب I	اجباري	
	COIN306	معالجات دقيقة II	3	2	2	Computer Interface	موائمة الحاسوب	اجباري	
	OPSY307	هياكل البيانات	3	2	2	Operating System I	انظمة تشغيل I	اجباري	
يختار الطالب مقرر واحد فقط ، عدد الوحدات المطلوبة =2 وحدة	AMPR310	-	2	-	2	Advanced Micro- Processor	معالجات دقيقة متقدمة	اختياري	
	SOCO311	-				Soft Computing	حوسبة مرنة		
			20	6	17	مجموع ساعات ووحدات الفصل الدراسي الأول			



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:

This is an under graduate level course on data communication. The course involves both a reading/lecture/discussion and a term project. We will read and discuss topics on various aspects of data communication: Data & Signals, Digital & Analog transmission, Transmission Media, Switching, Error Detection and Correction and Data Link Control

Course Details:

Article	Week
1. Introduction to Data Communications and Underlying Technologies	1
2. The OSI Model and the TCP/IP Protocol Suite	1
3. Network Devices and Transmission Media	2
4. Analogue and Digital Transmission	2
5. Bandwidth Utilization, Multiplexing, Spreading	2
6. Switching (Circuit-Switched and Packet networks)	1
7. Error Detection and Correction	2
8. Multiple Access Links and Protocols	2
9. Data-Link Control Protocols (Point-to-Point Protocol, HDLC)	2

1. Tanenbaum A.S. , "Computer Network",5th, Edition, Prentice-Hall Publishing,2014
2. Stallings W. , "Data & Computer Communications", 8th Edition , Prentice-Hall Publishing,2012 .
3. Forouzan B., "Data, Communications and Networking", '5th Edition McGraw-Hill Publishing,2013



Course Objectives:

This course provides the basic knowledge necessary to understand the digital signal. It presents how can convert the continues signal by studying the steps that used to transform into digital signal . then this course content all basic principle about digital signals and system.

Course Details:

Article	Week
Review of Continuous- Time Signals and system	1
Sampling theory and its basic principle	1
Elementary Discrete Time Signals	1
Classification of Discrete Time Signals	1
Input -output Description system	1
Classification of Discrete Time System	1
Differences Equation (D.E)	1
Time -Domain Representation	1
Interconnection of Discrete Time system	1
Impulse Response $h(n)$	1
Convolutional methods	2
De convolutional Methods	2
Frequency Domain Representation and Frequency response	1

Text Books:

1. Fundamental of Digital Signal Processing By L.C. Ludeman
2. Digital Signal Processing With Computer Application By P.A. Lynn



Course Objectives:

This course provides the basic knowledge necessary to understand the hardware operation of digital computer. It presents the various digital components used in the organization and design of digital computer and it shows the necessary steps that designer must go through in order to design an elementary basic computer.

Course Details:

S	Article	Week
1	Digital logic circuits and digital components review	1
2	Data representation: Signed number representation	1
3	Data representation: Fixed and floating point representation	1
4	Registers, bus and memory transfer	1
5	Arithmetic micro-operations	1
6	Logic and shift micro-operations	1
7	Application of logic micro-operations	1
8	Basic Computer hardware design: Instruction codes and registers	1
9	Basic Computer hardware design: Computer instructions	1
10	Basic Computer hardware design: Timing, control and instruction cycle	1
11	Basic Computer hardware design: Memory reference instructions	1
12	Basic Computer hardware design: Register reference instructions	1
13	Basic Computer hardware design: Input-output and interrupt instructions	1
14	Basic Computer hardware design: Complete design	1
15	Programming of Basic Computer	1

Text Books

1. M. Morris Mano "Computer System Architecture"
2. V.P Heuring and H.F Jordan "Computer System and Architecture"



Course Objectives:	
Learn both hardware and software aspect of I/O interfaces into microprocessor-based systems: and gain hands- on experience with, common microprocessor peripherals such as PPL. URATs. Timers. ADC and DAC, DMA, PIC. Understanding the main I/O chips in terms of (internal architecture, I/O programming and applications)	
Course Details:	
Article	Week
1. Basic I/O Interfacing	1
2. Programming 8255, Modes of operation(0,1,2)	1
3. Interface example –keyboard matrix, 7-segment Display, Printer	1
4. 8253, 8254 Timer Interfacing	2
5. ADC and DAC chips and their interfacing	1
6. Direct Memory Access	1
7. Serial I/O Interface	1
8. USART 8251,UART 16650	1
9. Serial I/O devices-mouse, modem	1
10.Interrupts programming 8259	2
11.8279 programmable keyboard/Display controller	1
12.PC bus standards & interface	2
Text Books:	
1- Barry B. Bray, The Intel Microprocessors 8086/8088, 80,86,80286,80386,80486, Pentium , Pentium pro processor, Pentium II, Pentium III, Pentium 4 , and core2 with 64bit Extension:Architecture, programming and interfacing, prentice Hall2008. 2- Walter Triebel and Avtar Singh, The 8088 and 8086 Microprocessors: programming, Interfacing, software, Hardware, Applications, 4 th edition, prentice-Hall, 2002. Intel 80x86 and other chips hardware reference manuals, Intel.	



Course Objectives:

The course provides an introduction to the design and implementation of operating systems. The students will be introduced to different operating systems and their structures to moreover to cover process management (processes, threads, CPU scheduling, synchronization, and deadlock).

Course Details:

Article	Week
1. Introduction to Operating Systems.	1
2. Operating-System Structures	2
3. Processes	2
4. Threads	1
5. Synchronization Tools	2
6. Synchronization Examples	2
7. CPU Scheduling	3
8. Deadlocks	2

Text Books

1. Operating Systems Concepts, 10th Edition Silberschatz, Abraham, Galvin, Peter B., and Gagne, Greg JohnWiley&Sons.,Inc. ISBN: 9781119320913.
2. An Introduction to GCC: For the GNU Compilers GCC and G++, Brian J. Gough, Richard M. Stallman, Network Theory Ltd, ISBN : 978-0954161798

course Objectives:

This course let the students to be familiar with some of the new algorithms and methods in soft computing. The algorithms are based on the natural behavior of the different organisms. Also, to give the ability to apply these methods in designing and understanding real-world systems

Course Details:

Article	Week
1.Introduction to soft computing	1
2.Introduction to artificial neural networks	2
3.Training neural networks	3-4
4.Applications of Neural networks	5
5.Introduction to Fuzzy logic	6
6.Fuzzification and defuzzification	7-8
7.Applications of fuzzy logic	9
8.Introduction to evolutionary algorithms	10
9.Genetic algorithm	11-12
10.Genetic programming	13
11.Applications of evolutionary algorithms	14
12.Ant colony algorithm	15

Text Books:

1. **Principles of Soft Computing** by S.N. Sivanandam
2. **Soft Computing and its Applications** by Kumar S. Ray
3. **Soft Computing** by D. K. Pratihar