

Al-Mansour University College

كلية المنصور الجامعة



Bachelor of Science Honours (B.Sc. Honours) –
Computer Science - Software Branch

بكالوريوس علوم حاسبات



Table of Contents

1. Overview
2. Undergraduate Courses/Modules 2023-2024
3. Postgraduate Courses/Modules 2019-2020
4. Contact

1. Overview

This catalogue is about the courses (modules) given by the program of computer science – Software branch to gain the Bachelor of Science degree. The program delivers (40) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظرة عامة

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج الهندسة الكهربائية للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (40) مادة دراسية مع (6000) اجمالي ساعات حمل الطالب و 240 اجمالي وحدات اوردية. يعتمد تقديم المواد الدراسية على عملية بولونا

2- Undergraduate Courses 2023-2024

LEVEL: UGI

First Course

1

Code	Course/Module Title	ECTS	Semester
PRFU111	Programming fundamental	8	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	0/2/0/1	110	90
Description			
To develop problem solving skills, this course deals with the basic concept of Algorithms and to understand the meaning of programming. So, Understanding the meaning of algorithms and how to write it, Understand the various types of data, Learn how to draw flowchart, Understanding the main data types in C++ (logical and mathematics operations), Capable of writing While an For statements in the program and Have the ability to use conditions (IF , IF else) statements.			

Module Information معلومات المادة الدراسية			
Module Title	Programming fundamental		Module Delivery
Module Type	CORE		-Theory Lecture -Lab -PracticalSeminar
Module Code	PRFU111		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	1	Semester of Delivery	1
Administering Department		College	
Module Leader	Assist Lecture Sara Haitham	e-mail	110024@uotechnology.edu.iq
Module Leader's Acad. Title	Assist Lecture	Module Leader's Qualification	M.Sc.
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. To develop problem solving skills 2. This course deals with the basic concept of Algorithms. 3. To understand the meaning of programming. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Understanding the meaning of algorithms and how to write it 2. Understand the various types of data 3. Learn how to draw flowchart. 4. Understanding the main data types in C++ , and logical and mathematics operations 		

	<p>5. Capable of writing While an For statements in the program.</p> <p>6. Have the ability to use conditions (IF , IF else) statements</p>
<p>Indicative Contents المحتويات الإرشادية</p>	<p>1. Explain the steps involved in problem definition and analysis.</p> <p>2. Learn how to write algorithm and draw the flowchart to solve a particular problem</p> <p>3. Define program that capable of reading and printing data.</p> <p>4. Learn how to repeat execution of a block of statements (While, For)</p> <p>5. Learn how to use conditions in the program</p>
<p>Learning and Teaching Strategies استراتيجيات التعلم والتعليم</p>	
<p>Strategies</p>	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.</p>

<p>Student Workload (SWL) الحمل الدراسي للطالب</p>			
<p>Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل</p>	102	<p>Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا</p>	7
<p>Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل</p>	98	<p>Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا</p>	7
<p>Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل</p>	200		

<p>Module Evaluation تقييم المادة الدراسية</p>					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	5	LO # 1 and 3
	Practical Seminar(Lab).	2	15% (15)	Continuous	LO # 2 , 4 and 5
	Midterm Exam	1 hr	15% (15)	14	LO # 1 to 5

Summative assessment	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	<ul style="list-style-type: none"> • Introduction, Procedural Programming Principles • Introduction to algorithm • Algorithms example
Week 2	<ul style="list-style-type: none"> • Flowchart definition and its symbols • Flowchart examples
Week 3	<ul style="list-style-type: none"> • C++ programming language • Structure of C++ program • Reserved words and Header files • Character set and Identifiers • Variable and Constant • Data type (int , float , char , void) • Cout , Cin
Week 4	<ul style="list-style-type: none"> • Constant • % operator • IF statement • Compound IF statement • IF / ELSE statement
Week 5	Quizzes
Week 6	<ul style="list-style-type: none"> • && , with if statement • ELSE IF statement
Week 7	<ul style="list-style-type: none"> • Switch statement • Nested switch statement
Week 8	<ul style="list-style-type: none"> • C++ operators : Arithmetic , Assignment ,Comparison ,Logical • Operators precedence
Week 9	<ul style="list-style-type: none"> • Unary operators (++ , --) • Prefix ,Postfix notation
Week 10	<ul style="list-style-type: none"> • Examples of order evaluation • “math.h” library : Exp,Log,Sin, Cos,Tan,Pow,Sqrt
Week 11	<ul style="list-style-type: none"> • While statement
Week 12	<ul style="list-style-type: none"> • Do / While statement
Week 13	<ul style="list-style-type: none"> • For loop statement
Week 14	Midterm Exam

Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to C++ environment
Week 2	Introduction to C++ environment
Week 3	<ul style="list-style-type: none"> • C++ programming language • Structure of C++ program • Reserved words and Header files • Character set • Variable and Constant • Data type (int , float , char , void) • Cout , Cin
Week 4	<ul style="list-style-type: none"> • IF statement • Compound IF statement • IF / ELSE statement • Constant • % operator
Week 5	Quizzes
Week 6	<ul style="list-style-type: none"> • && , with if statement • ELSE IF statement
Week 7	<ul style="list-style-type: none"> • Switch statement • Nested switch statement
Week 8	<ul style="list-style-type: none"> • C++ operators : Arithmetic , Assignment ,Comparison ,Logical • Operators precedence
Week 9	<ul style="list-style-type: none"> • Unary operators (++ , --) • Prefix ,Postfix notation
Week 10	<ul style="list-style-type: none"> • Examples of order evaluation • “math.h” library : Exp,Log,Sin, Cos,Tan,Pow,Sqrt
Week 11	While statement
Week 12	Do / While statement
Week 13	For loop statement

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Mastring C++, Amman-Jordan, AL-Shorok, 2002	Yes
Recommended Texts	1- OqeiliSalch, prof. Department of IT-AL-Balqa Applied University. .	No
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

2

Code	Course/Module Title	ECTS	Semester
MATH112	Mathematics	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	0/0/0/2	93	57
Description			
To understand the Mathematical background and learn the matrix, Types of matrix, Matrix addition, subtraction, and multiplication, Determinant, transpose, and Grammar rule for solving system of equation. Then study the Functions, Domain and range of functions and Graphing of function. So, understand the Limits, Derivation, Series, Integration, and Application of integral area under the curve and Area between two curves.			

Module Information				
معلومات المادة الدراسية				
Module Title	MATHEMATICS		Module Delivery	
Module Type	BASIC		Theory Lecture Lab Tutorial Practical Seminar	
Module Code	MATH112			
ECTS Credits	6			
SWL (hr/sem)	200			
Module Level	1	Semester of Delivery		1
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Prof. Naji Matar suhaib		e-mail	Naji_e2006@yahoo.com
Module Leader's Acad. Title	Prof.	Module Leader's Qualification	M.Sc	
Module Tutor	None		e-mail	None
Peer Reviewer Name			e-mail	
Review Committee Approval			Version Number	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	4. To learn how solve and develop problem solving skills		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learning how solve equations by hand without computer. 2. Develop the brain ability.		
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> ➤ Mathematical background ➤ Matrix <ul style="list-style-type: none"> • Types of matrix • Matrix addition, subtraction, and multiplication • Determinant, transpose, and rank of matrix • Inverse of matrix, absolute value, and polynomials ➤ Functions <ul style="list-style-type: none"> • Function Definition • Domain and range of functions ➤ Derivation <ul style="list-style-type: none"> • Mathematical definition of derivation, rule of derivation • Derivation of trigonometric, inverse trigonometric, logarithm, exponential . ➤ Series ➤ integration <ul style="list-style-type: none"> • Integration Indefinite integral • Rules of integral • Method of integration <p>-Partial derivative Partial derivative of two variables, total differential. -Differential equations First order differential equations Variable separable, homogeneous differential equation, Exact differential equation, first order linear differential equation.</p>		

	<p>➤ Second order differential equation Homogeneous second order with constant coefficient, non Homogeneous second order with constant coefficient, Variation of parameter.</p> <p>-Laplace transformation Definition, Laplace transformation of some function, Laplace transformation of differential Properties of L.T (1) Shifting (2) L.T of integrals Multiplication by t^n.</p> <p>-Inverse laplace transformation Properties of inverse L.T 1- Partial fraction, 2- Application of Laplace transformation Linear(D.E) with constant coefficient.</p>
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their mathematical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.</p>
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	110	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	7.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	90	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	5% (5)	5, 10	LO #1, 2
	Assignments	1	3% (3)	2, 12	LO # 1, 2
	Projects / Lab. Report	1	15%(15)	15	LO # 1, 2
		1	2%(2)	13	LO # 1, 2
Summative assessment	Midterm Exam	2 hr	15% (15)	7	LO # 1, 2
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	<ul style="list-style-type: none"> ➤ Mathematical background ➤ Matrix Types of matrix, Matrix addition, subtraction, and multiplication, Determinant, transpose, and rank of matrix
Week 2	Inverse of matrix, absolute value,
Week 3	<ul style="list-style-type: none"> ➤ Functions , Function Definition, Domain and range of functions and polynomials,
Week 4	<ul style="list-style-type: none"> ➤ Derivation Mathematical definition of derivation, rule of derivation Derivation of trigonometric, inverse trigonometric, logarithm, exponential.
Week 5	<ul style="list-style-type: none"> ➤ Series
Week 6	<ul style="list-style-type: none"> ➤ Integration Indefinite integral, Rules of integral.
Week 7	Method of integration
Week 8	Partial derivative Partial derivative of two variables, total differential.
Week 9	Differential equations First order differential equations Variable separable, homogeneous differential equation
Week 10	Exact differential equation, first order linear differential equation.
Week 11	<ul style="list-style-type: none"> ➤ Second order differential equation

	<ul style="list-style-type: none"> ➤ Homogeneous second order with constant coefficient, non Homogeneous second order with constant coefficient.
Week 12	Variation of parameter
Week 13	Laplace transformation Definition, Laplace transformation of some function, Laplace transformation of differential Properties of L.T (3) Shifting (4) L.T of integrals (5) Multiplication by t^n .
Week 14	Inverse laplace transformation Properties of inverse L.T 2- Partial fraction
Week 15	3- Application of Laplace transformation 4- Linear(D.E) with constant coefficient.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	<ul style="list-style-type: none"> ➤ How to use Matlab ➤ matrix Types of matrix, Matrix addition, subtraction, and multiplication, Determinant, transpose, and rank of matrix
Week 2	Inverse of matrix, absolute value,
Week 3	Functions , Function Definition, polynomials,
Week 4	Derivation Mathematical definition of derivation, rule of derivation Derivation of trigonometric, inverse trigonometric, logarithm, exponential.
Week 5	Series
Week 6	Integration Indefinite integral, Rules of integral.
Week 7	Method of integration
Week 8	Partial derivative Partial derivative of two variables, total differential.
Week 9	Differential equations First order differential equations Variable separable,

Week 10	homogeneous differential equation
Week 11	Exact differential equation, first order linear differential equation.
Week 12	Second order differential equation
Week 13	Homogeneous second order with constant coefficient,
Week 14	non Homogeneous second order with constant coefficient.
Week 15	Laplace transformation

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas, G. Calculus and Analytic Geometry, Fifth Edition, Addition Wesley, 1999	Yes
Recommended Texts		
Websites	https://youtube.com/@soraali5120	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX - Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required

3

Code	Course/Module Title	ECTS	Semester
STPR113	Statistics and probability	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	0/0/0/2	93	57
Description			
To develop problem solving skills, this course deals with the basic concept of population, samples, type of samples, Random variables, discrete and continuous variable. Then study the Data Organization, frequency distribution, histogram, and measurement of central tendency. So understand the measurements of variation (standard deviation, variance, coefficient of variation). Learn about the Probability Theory, probability theorems, Counting techniques, and Conditional probability develop skill with Continuous Probability Distributions and Correlation and Regression			

Module Information			
معلومات المادة الدراسية			
Module Title	STATISTICS AND PROBABILITY		Module Delivery
Module Type	CORE		Theory Lecture Tutorial Practical
Module Code	STPR113		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Dr. Ammar Moayed		e-mail
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	None		e-mail Ammar.m@coadec.uobaghdad.edu.iq
Peer Reviewer Name		e-mail	
Review Committee Approval	01/06/2023	Version Number	1.0

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 5. Understand the laws of statistics and data distribution. 6. Enable the student to transform large data into understandable shapes and illustrations, and to deduce statistical data. 7. provide the students with details statistics and data population. 8. Define and explain the basic of probabilistic metrics like event, outcome, trial, simple event, sample space, Venn Diagram ,tree diagram, and calculate the probability that an event will occur. 5. Define and explain the basic of statistical measurements like Data Organization, variation, of central tendency. 6. Express the concepts and principal of counting techniques (factorial , combination) and the basic principles of Probability Theory 7. Solve the problems about permutation, combination and Binomial Theorem. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. provide the students with details Probability and its theories and how apply them on game theory. 2. Enable the student to transform large data into understandable shapes and illustrations, and to deduce statistical data 3. Express the concept of probability and its features. Explain the concept of a random event, addition and multiplication probabilities lows . 4. Understand the laws of statistics and data distribution 5. Express the concepts of factorial and the basic principal of counting. Solve the problems about permutation, combination and Binomial Theorem. 6. enable the students with knowledge of the problems and solutions that may face in future and depend on probability theory to solve them 		
Indicative Contents المحتويات الإرشادية	<p><u>Part A - statistic</u></p> <ol style="list-style-type: none"> 1- Population, samples, type of samples, Random variables discrete variable, continuous variable, Data Organization. [4] 2- frequency distribution, histogram [8] 		

	<p>3- Measurement of central tendency - mean, median, mode. [6]. 4- measurements of variation -standard deviation, variance.[6] 5- Coefficient of variation, Correlation and Regression. [8]</p> <p><u>Part b – probability.</u></p> <p>1- Probability Theory -sample space, events, rules of probability. [4] 2- Venn Diagram, tree diagram, probability theorems -Addition theorem.[4] 3- Multiplication theorem.[4] 4- Combinations ,Conditional probability[4] 5- Bayes theorem, Independent of events, Discrete Probability distributions.[4] 6- Binomial distribution, Multinomial distribution.[4] 7- Poisson distribution, Continuous Probability Distributions-Uniform distribution.[4] 8- Normal distribution, Exponential distribution[4].</p>
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple examples involving some sampling activities that are interesting to the students.</p>
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Quizzes	2	6% (10)	5, 10	LO #2,4, and 5

Formative assessment	Assignments	2	4% (10)	2, 12	LO # 2 and 5
Summative assessment	Midterm Exam	1 hr	20% (10)	7	LO # 1-5
	Final Exam	2hr	70% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Population ,samples , type of samples, Random variables discrete variable, continuous variable, Data Organization.
Week 2	frequency distribution, histogram
Week 3	measurement of central tendency - mean ,median, mode.
Week 4	measurements of variation -standard deviation, variance ,coefficient of variation
Week 5	Probability Theory -sample space, events ,rules of probability, Venn Diagram.
Week 6	tree diagram, probability theorems -Addition theorem.
Week 7	Mid-term Exam
Week 8	Multiplication theorem.
Week 9	Counting techniques :Factorial, Permutations, Combinations ,Conditional probability
Week 10	Bayes theorem, Independent of events, Discrete Probability distributions.
Week 11	Binomial distribution, Multinomial distribution.
Week 12	Poisson distribution, Continuous Probability Distributions-Uniform distribution.
Week 13	Normal distribution, Exponential distribution.
Week 14	Correlation and Regression.
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	<ol style="list-style-type: none"> 1. Probability and statistics, theory and applications, Gunnar Blom 2. Probability and statistics for engineers, Richard L. Scheaffer 3. Statistics: theories and applications, Joseph Inungo, 2006. 4. Introductory Statistics , Ronald J. Wonnacott 	Yes
Recommended Texts	Introduction to Statistics and Data Analysis	No
Websites	https://www.spps.org/cms/lib/MN01910242/Centricity/Domain/859/Statistics%20Textbook.pdf	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

4

Code	Course/Module Title	ECTS	Semester
FUCT115	Fundamental of Computer Technology	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/2	63	37
Description			
To study the Software types, Software characteristics. To learn what are terms associated with Computer Technology, and Understanding Applications, the Cloud, and Software Development programs. Database fundamentals, Operating system basics. To learn the Software Development process and Software analysis. To Understanding the Software Design and Safety and Maintenance.			

Module Information			
معلومات المادة الدراسية			
Module Title	Fundamental of Computer Technology	Module Delivery	
Module Type	CORE	Theory Lecture Tutorial	
Module Code	FUCT115		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	1
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Assist Lecture Mustafa Muhanad M.Salih	e-mail	mustafamuhanad@muc.edu.iq
Module Leader's Acad. Title	Assist Lecture	Module Leader's Qualification	Ms.c
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	9. This course deals with the basic concept of Computer Technology. 10. This is the basic subject for all Computer Technology subject.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	3. Recognize Computer Technology. 4. List the various terms associated with Computer Technology. 5. Summarize what is meant by Computer Technology.		
Indicative Contents المحتويات الإرشادية	1. Explain the main concept involved in Computer Technology. 2. Learn what are terms associated with Computer Technology.		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.		

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	58	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, and 3
	Assignments	2	10% (10)	2, 12	LO #1, 2, and 3
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO #1, 2, and 3
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO #1, 2, and 3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Software <ul style="list-style-type: none"> - Software types - Software characteristics
Week 2	Programming language basics <ul style="list-style-type: none"> - Low level (assembly) language - High level language
Week 3	Understanding Applications <ul style="list-style-type: none"> - Desktop applications - Mobile applications
Week 4	Understanding the Cloud <ul style="list-style-type: none"> - What is the cloud - Why use the cloud - What is a web application
Week 5	Software Development programs <ul style="list-style-type: none"> - Editor - Translator - Linking loader - Debugger
Week 6	Database fundamentals
Week 7	Mid-term Exam + Unit-Step Forcing, Forced Response, the RLC Circuit
Week 8	Operating system basics
Week 9	Software Development process
Week 10	Software analysis <ul style="list-style-type: none"> - Flowchart
Week 11	Software Design

	<ul style="list-style-type: none"> - Data flow diagram (DFD) - Walkthrough
Week 12	Software Design <ul style="list-style-type: none"> - Data flow diagram (DFD) - Walkthrough
Week 13	Safety and Maintenance <ul style="list-style-type: none"> - Keeping Your Computer Clean - Protecting Your Computer - Creating a Safe Workspace
Week 14	Safety and Maintenance <ul style="list-style-type: none"> - Keeping Your Computer Clean - Protecting Your Computer - Creating a Safe Workspace
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	<ul style="list-style-type: none"> - Foundations of Computer Technology, By Alexander John Anderson. 	No

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54). The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

5

Code	Course/Module Title	ECTS	Semester
DEHR105	Democracy and Human Rights	2	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/0	33	17

Description

يتضمن مفهوم مادة الحقوق والديمقراطية (تعريف الحقوق-خصائص الحقوق). ويعرف الطالب بمفهوم حقوق الانسان في الشرائع السماوية(الديانتين المسيحية واليهودية- الدين الاسلامي). كما يتضمن شرح مصادر حقوق الانسان(المصادر الدولية- المصادر الوطنية)و ضمانات حقوق الانسان(الضمانات على الصعيد الداخلي- الضمانات على الصعيد الدولي). كذلك التقدم التكنولوجي واثره على الحقوق والحريات(الاحزاب السياسية- حماية الملكية الفكرية). ومفهوم الديمقراطية وصورها وآلية النظام النيابي(الانتخاب). وهناك العديد من الاستراتيجيات التعليمية المشتركة التي يمكن تطبيقها واستخدامها في تدريس وتعلم مادة حقوق الانسان والديمقراطية في الجامعات.

Module Information

معلومات المادة الدراسية

Module Title	Democracy and Human Rights		Module Delivery	
Module Type	BASIC		Theory Lecture Tutorial Practical Seminar	
Module Code	DEHR105			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1	Semester of Delivery	1	
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Assist Lecture Mohammmd faroq mahmoud	e-mail	Mohammed.faroq@muc.edu.iq	
Module Leader's Acad. Title	Assist Lecture	Module Leader's Qualification	Ms.c	
Module Tutor	None	e-mail	None	
Peer Reviewer Name		e-mail		
Review Committee Approval		Version Number		

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	<p>1- تعزيز الحوار والاحترام المتبادل: تسعى المادة إلى تعزيز الحوار المفتوح والبناء بين الطلاب وتشجيعهم على احترام وتقدير وجهات نظر الآخرين، حتى في حالة اختلاف الرأي. وتهدف أيضاً إلى تعزيز التفاهم المتبادل وقدرة الطلاب على التفاعل مع الآراء المتنوعة.</p> <p>2- تطوير المهارات الحياتية: تساهم مادة حقوق الانسان، والديمقراطية في تطوير مهارات حيوية للطلاب، مثل التفكير النقدي، والقراءة والكتابة، والبحث، وحل المشكلات، واتخاذ القرارات المستنيرة، والتواصل الفعال.</p> <p>3- تعزيز المواطنة النشطة: تهدف المادة إلى تعزيز المواطنة النشطة لدى الطلاب، وتشجيعهم على المشاركة في العمل الجماعي.</p>
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<p>من المتوقع أن تحقق مادة حقوق الانسان والديمقراطية في الجامعات مجموعة من المخرجات التعليمية للطلاب. وفيما يلي بعض المخرجات المحتملة لهذه المادة:</p> <p>1. الفهم العميق لمفاهيم حقوق الانسان والديمقراطية: يمكن للطلاب أن يكتسبوا فهماً شاملاً لمفاهيم حقوق الانسان والديمقراطية ومبادئها الأساسية، بما في ذلك حقوق الإنسان، وحرية التعبير، والمساواة، وحوكمة القانون.</p> <p>2. تعزيز الحوار والاحترام المتبادل: يمكن للطلاب أن يتعلموا كيفية المشاركة في حوارات بناءة ومتعاونة، وتقدير واحترام وجهات نظر الآخرين، حتى في حالة اختلاف الرأي.</p> <p>3. تعزيز الوعي بالمواطنة: يمكن للطلاب أن يكتسبوا وعياً أكبر بمسؤولياتهم كمواطنين ودورهم في المجتمع، وتعزيز المواطنة النشطة والمشاركة الاجتماعية.</p>
Indicative Contents المحتويات الإرشادية	<p>نتناول مادة حقوق الانسان والديمقراطية من ناحية مفهوم حقوق الانسان وموقف الشرائع السماوية من الحقوق ومصادر الحقوق وضماناتها ومفهوم الديمقراطية وصورها وآلية النظام النيابي(الانتخاب)</p>

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>هناك العديد من الاستراتيجيات التي يمكن استخدامها في تدريس وتعلم مادة حقوق الانسان والديمقراطية في الجامعات. وفيما يلي بعض الاستراتيجيات التعليمية المشتركة التي يمكن تطبيقها:</p>
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	<p>1. المناقشات الجماعية: يمكن تنظيم مناقشات جماعية حول مواضيع حقوق الانسان والديمقراطية. يتم توجيه الطلاب لتبادل وجهات النظر والمناقشة النقدية بشأن قضايا مثل حقوق الإنسان. ينبغي تشجيع المشاركة الفعالة واحترام وجهات النظر المختلفة.</p> <p>2. دراسات الحالة: يمكن استخدام دراسات الحالة لتعريف الطلاب بتجارب حقيقية لحقوق الانسان والديمقراطية أو حالات انتهاكات لحقوق الإنسان.</p> <p>3. العروض التقديمية والمنشورات: يمكن للطلاب إعداد عروض تقديمية ومنشورات حول مفاهيم حقوق الانسان والديمقراطية وتطبيقاتها. يمكنهم استخدام الصور والرسوم التوضيحية والأمثلة الواقعية لتوضيح المفاهيم بشكل أكثر وضوحًا .</p>
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.13
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #3
	Assignments	2	10% (10)	2 and 12	LO #1, #2 and #3
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1, #2 and #3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	مفهوم الديمقراطية- اشكال الديمقراطية1_ الديمقراطية المباشرة
Week 2	2- الديمقراطية شبه المباشرة
Week 3	3- الديمقراطية التمثيلية (النيابية). (المفهوم والاركان)
Week 4	اشكال النظام التمثيلي (النيابي)(النظام المجلسي-النظام الرئاسي)
Week 5	اشكال النظام التمثيلي- النظام البرلماني
Week 6	آلية النظام التمثيلي (النيابي): الانتخاب (مفهوم الانتخاب- هيئة الناخبين)
Week 7	نظم الانتخابات
Week 8	مفهوم الحقوق (التعريف -الفئات)
Week 9	حقوق الإنسان في الشرائع السماوية(الديانات المسيحية واليهودية)
Week 10	حقوق الانسان في الشرائع السماوية(الدين الإسلامي)
Week 11	المصادر الدولية لحقوق الانسان أ- الإعلان العالمي لحقوق الانسان
Week 12	ب- العهدان الدوليان الخاصان بحقوق الإنسان
Week 13	ضمانات حقوق الإنسان على الصعيد الداخلي
Week 14	ضمانات حقوق الإنسان على الصعيد الدولي
Week 15	الامتحان النهائي

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	حقوق الانسان والطفل والديمقراطية تأليف: د.ماهر صالح علاوي الجبوري، د.رعد ناجي الجدة، د.رياض عزيز هاي، د.كامل عبد العنكود، د.علي عبدالرزاق محمد، د.حسان محمد شفيق	No
Recommended Texts		
Websites		

APPENDIX:

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
<p>Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

6

Second Course

1

Code	Course/Module Title	ECTS	Semester
STPR121	Structured Programming	8	2
Lectures (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USSWL (hr/w)
4	0/2/0/1	110	90
Description			
<p>This course is to understand the Defining a function, Return statement, Types of functions, Actual and formal arguments, Recursive functions. Then study the Arrays (One dimensional array (declaration, initialization, Accessing), Two dimensional array (declaration, initialization, Accessing)). So develop skill of String manipulation (Structures ,Pointers)</p>			

2

Code	Course/Module Title	ECTS	Semester
DIST122	Discrete Structures	5	2
Lectures (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USSWL (hr/w)
3	0/0/0/1	63	62
Description			

This course deal with Set theory, Mathematical induction, Relations(Computer representation of relations and Digraph, Manipulation of relations, Properties of relations, and Composition of relations), Functions, Graphs(Matrices and graph, Trees, rooted tree, ordered rooted tree, polish notation, with examples), and Finite state machines

3

Code	Course/Module Title	ECTS	Semester
LODE123	Logic Design	6	2
Lectures (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USSWL (hr/w)
3	0/2/0/1	95	55

Description
<p>This course is to develop the skill of Number system (Decimal,Binary,Octal, Hexadecimal), then understand the Addition and subtraction, Logic gats, Boolean algebra and simplification and demerger's and K-map. So to learn about Combinational universal NAND and NOR logic, Half-adder, full-adder, 4-bit parallel adder, and Subtract adder and Decoder, encoder, multiplexer, and demultiplexer. So to understand the Sequential logic circuits and Flip-flop, SR, D, and JK flip-flop,Shift register 3-bit and 4-bit, Binary counter 3-bit and 4- bit.</p>

4

Code	Course/Module Title	ECTS	Semester
SODT124	Software Development Techniques	4	2
Lectures (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USSWL (hr/w)
2	0/0/0/2	63	37
Description			
<p>What is programming Techniques, Classification of programming Techniques, Programming Languages types, Programming Languages Translators, Features of High level Programming language, The Structure And Operation Of a Computer and The Hardware Of The Computer, Constant and variables, Representations, Representation of integer and real, and Representation of characters, Basic Arithmetic operators, Basic Logical operators, and syntax for expression, prefix, postfix and infix? what is Software , Understanding General Software Development, Software Development Life Cycle and Modularization, The Context of Software Development, Profilers, Program Planning and Design, Understanding the Program, Using Design Tools to Create a Model, Develop Test Data, Pseudo-code, top down design, Understanding Object Oriented Programming, Understanding Web Applications, Understanding Desktop Applications, Understanding Databases.</p>			

5

Code	Course/Module Title	ECTS	Semester
SOEN125	Software Engineering	5	2
Lectures (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USSWL (hr/w)
2	0/2/0/1	80	45
Description			
<p>This subject introduce software engineering, what is evolving role of software, what is the Software characteristics and Software engineering principles. To learn the attribute of good software and Software lifecycle. To study_ the types of model: The waterfall model, The prototype model , The RAD model, Evolutionary software process models, The incremental model, The spiral model. Introduction to Software process and project metrics, Measures, Software Quality Metrics, Defect removal efficiency.</p>			

6

Code	Course/Module Title	ECTS	Semester
WORK106	English/1	2	1
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
0	0/3/0	64.5	3.5
Description			
<p>التعرف والتعلم وتطوير المهارات المتعلقة بورشة الكهرباء – ورشة السباكة – ورشة اللحام – ورشة النجارة التدريبية – ورشة الحدادة – ورشة السمكرة – ورشة البرادة – ورشة السيارات – ورشة الخراطة.</p>			

LEVEL: UGII**First Course****1**

Code	Course/Module Title	ECTS	Semester
OBOP211	Object Oriented Programming	8	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	0/2/0/1	110	90
Description			
<p>This course provide the Overview for functions and parameter transmission and Introduction of OOP with its main features. So learn of Classes in OOP by Defining a Simple Class with Inline Member Functions, Constructors and destructors functions, and Friends functions, Constant Members, Static Members, Default Arguments and Implicit Member Argument. Also develop skill of Overloading(Function overloading and Operators overloading)</p>			

2

Code	Course/Module Title	ECTS	Semester
DAST212	Data Structures	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	80	45
Description			
<p>This course introduce the introduction to Data Structures with all Types and Memory representation for 1D and 2D arrays, Linear list and Linear list types, Stack Operations and some examples. Then learn the Queue and Queue Operations, Circular Queue with Operations. Also provide the skill to use Linked List, Linked-Stack, Linked-Queue, Linked-Cqueue and Recursion.</p>			

3

Code	Course/Module Title	ECTS	Semester
NUAN213	Numerical Analysis	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	80	45
Description			
<p>This course explain the concept of Numerical analysis and solving sets of equation, Elimination and iterative methods, Interpolating polynomials, Lagrange polynomial, Solving non-liner equation, Numerical differentiation and numerical integration and Numerical solution of ordinary differential equations. So introducethe topics of Curve-fitting and approximations, the solution of integral equation, trapezoidal method, Simpsons method.</p>			

4

Code	Course/Module Title	ECTS	Semester
ADSE214	Advance Software Engineering	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	80	45
Description			
<p>This course introduce Software project planning, Software Scope, Estimation models, The structure of estimation models, The COCOMO Model, The software equation model, also this course introduce risk analysis and management, project scheduling and tracking, software quality, Software reliability, Software availability. Introduction to analysis concepts and principles, Software requirements elicitation, Analysis principals. Explain the Software prototyping, Specification principles.</p>			

5

Code	Course/Module Title	ECTS	Semester
ANDA215	Analysis and Design of Algorithms	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	80	45
Description			
<p>This course explains the Concepts and properties of algorithms, Differences among best, expected, and worst case behaviours of an algorithm. Then Computing by calculating how programs are evaluated. Understand the Rule of algorithms in problem solving process and Problem solving strategies. Learn the implementation of algorithms and Algorithms strategy, algorithms efficiency</p>			

6

Code	Course/Module Title	ECTS	Semester
ENLA216	English language	2	1
Lectures (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USSWL (hr/w)
2	0/0/0/0	33	17
Description			
<p>This course is develop skills of Writing and Reading. How to write and understand simple paragraphs on arrange of topics within the field of the study and interest or experience, Develop the extensive intensive reading skills by taking different passage, Write your CV in summary form. Then understand the Project Implementation by Choose a topic and apply the items of scientific writing and Make presentation by applying the rules of the four skills of the language.</p>			

Second Course

1

Code	Course/Module Title	ECTS	Semester
DATA221	Database	8	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	0/2/0/1	110	90
Description			
<p>This course includes explanation of Centralized database system, the purpose of database and Comparing between a file processing system and DBMS. So it include Data Abstraction and file system disadvantage, Entity relationship model, Relational model , Tables joining, Instant and schema And Indexing(Primary indexing, Secondary indexing, Index update, and Hash index)</p>			

2

Code	Course/Module Title	ECTS	Semester
MICR222	Microprocessor	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/1	95	55
Description			
<p>This course is developed skill about Microprocessor and Microcomputer system by explain the Microprocessor Architecture and Register Set, System Buses, Memory types and physical addressing, and I/O devices. So it includes the Instruction Set and Format, Addressing Modes, and Assembly Programming Language (Arithmetic and logical Instructions, Program Control (interrupt and subroutine call)).</p>			

3

Code	Course/Module Title	ECTS	Semester
SOSA223	Sorting and Searching Algorithms	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	80	45
Description			
<p>The topics of this course are explain the Sorting Algorithm (Insertion Sort, Selection Sort, Bubble Sort, Heap Sort, Quick Sort, and Merge Sort). Also this course is develop the skill about Searching algorithm (Sequential Search, Binary Search). Then learn Trees (Types of Tree, Binary tree, Binary tree scan, Represent Regulars expression using trees, Binary Search Tree).</p>			

4

Code	Course/Module Title	ECTS	Semester
COCO224	Computational Complexity	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/2	63	37
Description			
<p>The topics of this course are explain Computational complexity: Concepts and definition, Complexity classes, such as constant, logarithmic, linear, quadratic, and exponential. Empirical measurements of performance. Analysis of iterative and recursive algorithms. Also it includes Introduction to the P and NP classes, Reduction Techniques.</p>			

5

Code	Course/Module Title	ECTS	Semester
SOMA225	Software Modelling and analysis	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	80	45
Description			
The topics of this course are explain modeling foundation. The type of models such as information modeling, behavioral modeling, architectural modeling, domain modeling, enterprise modeling, modeling embedded systems. also this subject includes analysis fundamental			

6

Code	Course/Module Title	ECTS	Semester
HURI226	Human Rights	2	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/0	33	17
Description			
يتضمن هذا الموديل مفهوم الحقوق)تعريف الحقوق-خصائص الحقوق(ويعرف الطالب بمفهوم حقوق النسان في الشرائع السماوية)الديانتين المسيحية واليهودية- الدين السالمي(. كما يتضمن شرح مصادر حقوق النسان)المصادر الدولية- المصادر الوطنية(و ضمانات حقوق النسان)الضمانات على الصعيد الداخلي- الضمانات على الصعيد الدولي(. كذلك التقدّم التكنولوجي واثره على الحقوق والحريات)الاحزاب السياسية- حماية الملكية الفكرية)			

LEVEL: UGIII**First Course****1**

Code	Course/Module Title	ECTS	Semester
COAR311	Computer Architecture	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/1	95	55
Description			
<p>The topics of this course include some Introduction to Computer Organization (RISC and CISC, I/O Organization and Peripheral Control Strategies, I/O Interfaces and Programming, Asynchronous data transfer). So explain the Memory Management, Memory types and Hierarchy, Main Memory address map, and Associative Memory and Content Addressable Memories. Then it include the explanation about Parallel Processing and Difficulties and Solutions in Instruction Pipeline and Vector processing and Array Processing.</p>			

2

Code	Course/Module Title	ECTS	Semester
COTH312	Computation Theory	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/0/0/2	78	47
Description			
<p>This course includes the explanation of Regular Expression, Finite Automata, DFA and NFA, Equivalence of NFA and DFA, Kleen theorem, Two way finite automata with output (mealy machine, moor machine). So develop the skill about the equivalence of mealy and moor machine, and give some introduction to Crammers, Phrase Structure Grammar, Context sensitive Grammar, Context Free grammar (Chomsky Normal Form, Tree, leftmost and rightmost derivations, Regular grammar, Left linear grammar, Right linear grammar, Push down automata, Top down –bottom up derivation, and turing machine).</p>			

3

Code	Course/Module Title	ECTS	Semester
COGR313	Computer Graphics	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/1	95	55
Description			
<p>The topics of this course include the explanation of the introduction { Computer Graphics, Cathode Ray Tube (CRT) , Generating color on a RGB monitors, Coordinates system, Raster-can display, Frame Buffer, Scan conversion, Applications of computer graphics. Also it explain Vectors {unit vector, measurement associated with vectors, manipulation vectors, negative vectors and subtracting vectors, scaling Vectors, multiplying vectors uses the "dot Product" & direction Cosine, "cross product" }, Basic Shapes Drawing (Line, Circle, Ellipse), Two Dimension Transformations (Translation, Scaling, Rotation, Reflection, shearing). Clipping and Windowing and viewport and polygon</p>			

4

Code	Course/Module Title	ECTS	Semester
PAPP314	Parallel Programming Paradigms	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/1	95	55
Description			
<p>This course is understand the foundations of parallel programming, parallel hardware and parallel software, and distributed-memory programing with mpi. also this course includes shared memory programming with pthreads, and parallel programming development</p>			

5

Code	Course/Module Title	ECTS	Semester
SODE315	Software Design	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/2	63	62
Description			
<p>This course explain the design concepts, Fundamental design issues and Interactions between design and requirements. Also understand the design strategies and architectural design. Design for quality attributes (e.g., reliability, usability, maintainability, performance, testability, security, and fault tolerance). Design strategies such as function-oriented design, object-oriented design, and data-structure centered design and aspect-oriented design. Finally study the design evaluation.</p>			

6

Code	Course/Module Title	ECTS	Semester
ETHI316	Ethics	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/0	33	17
Description			

Second Course

1

Code	Course/Module Title	ECTS	Semester
WEPR321	Web Programming	8	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	0/2/0/1	110	90
Description			
<p>This course is developed skill of Web Based Application by explain some introduction of the world wide web, the internet and web, the history and growth of the web, internet service provider , Http, the purpose of the web, web application ,The web concepts Hypertext, web page, web site, webpage address.</p> <p>Also explain the Internet TCP/IP , client/server, URL , Web Based Application, web browsing,The classifying the web sites, environment, the general approach, range of complexity, web application ,web page, web site , Classifying the Web Sites (HTML basic tags (head, body, b ,p, I, u sup, sub),(HTML insert image and link to pages (bgcolor, other attribute) image maps , list tags , tables tags , form tags , frameset), JavaScript Introduction , Put a JavaScript into anHTML page , JavaScript Arithmetic (Logical Operators, , Conditional Statement, JavaScript Functions, JavaScript Popup Boxes, Array, Loops JavaScript, JavaScript getElementById).</p>			

2

Code	Course/Module Title	ECTS	Semester
CODE322	Compiler Design	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/1	95	55

Description
This course introduce some introduction to Compiler, Lexical analysis, Syntax of Analysis, Problems of Compiler. Also includes First and Follow, Top down Parsing, Predictive Parsing Method, LL(1), Bottom up Parsing, Operation Precedence Parser, Simple Left to Right Parser, Canonical LR Parser. In addition to Semantic Analysis, Intermediate Code Generation, Code Optimization, Code Generation.

3

Code	Course/Module Title	ECTS	Semester
INRT323	Information Retrieval Techniques	3	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/1	48	27
Description			
Information Retrieval (IR) definition, Basic concepts, Extraction of index terms, System performance evaluation and the efficiency measures. Searching the Web (full-text database, Web directories, hyperlink structure). IR Versus Web Search, search engines, components of a search engine, browsing, searching using hyperlinks, Web crawling and indexing. understand the text preprocessing lexical analysis, stopwords removal, and stemming. classical ir techniques. samples of modern ir techniques. distributed information retrieval (dir).. clustering in ir			

4

Code	Course/Module Title	ECTS	Semester
COVI324	Computer Visualization	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/0	80	45
Description			
This subject covers the 3d transformation and viewing, learn how the curve representation, surfaces, designs. bezier curves, b-spline curves, end conditions for periodic b-spline curves, rational b-spline curves are examples of curves. then understand the viewing, lighting and shading			

5

Code	Course/Module Title	ECTS	Semester
MOAD325	Mobile Application Design	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/0	80	45
Description			
<p>This subject includes introduction of Mobile application design, basics of embedded systems design, advanced design, designing applications with multimedia and web access capabilities and integration with gps and social media networking applications, and accessing applications hosted in a cloud computing environment, technology i – android and technology ii – ios.</p>			

6

Code	Course/Module Title	ECTS	Semester
ENAW326	English Academic Writing	3	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/1	48	27
Description			

LEVEL: UGIV**First Course****1**

Code	Course/Module Title	ECTS	Semester
OPSY411	Operating System	8	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	0/2/0/1	110	90
Description			
<p>The topics of this course includes Operating Systems Definition (Computer-System Architecture, Single-Processor Systems, Multiprocessor Systems, and Clustered Systems). Also the Operating-System Structure (Process Management, Memory Management, Storage Management, User and Operating-System Interface, and System Calls). In addition to Process Concept (Process State, Threads, Process Scheduling and Queues). This course also explain Scheduling Algorithms, Process Synchronization with Critical-Section Problem: Peterson's Solution, Synchronization Hardware, Semaphores and the Dining-Philosophers Problem.</p>			

2

Code	Course/Module Title	ECTS	Semester
MALE412	Machine Learning	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/0	80	45
Description			
<p>The topics of this course includes introduction (Definition of learning system, Goals and Application of machine learning, Aspect of developing a learning system: training data, concept representation, function approximation), Inductive classification- The concept learning talk(Concept learning as search through a hypothesis space, General – to – specific ordering of hypothesis, Finding maximally specific hypothesis, Find-s), Decision Tree Learning (Representing Concepts as decision tree (Recursive inductive of decision tree, Picking the best splitting attribute: entropy and information gain,)), Neural Networks (Artificial neuron concepts, NN Architecture, Supervised &Unsupervised , Activation Functions, learning Rules, perceptron, Hopfield NN, Back Propagation NN, Kohonen NN, Genetic Algorithms (GA concepts, GA Operators, GA Parameters, GA Fitness Function, Genetic Programming, GA Application.</p>			

3

Code	Course/Module Title	ECTS	Semester
DASE413	Data Security	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/0/0/2	80	45
Description			
<p>The topics of this course includes Security, Confidentiality, Threats to confidentiality, Integrity, Availability, Authentication, Non-repudiation, Security Attack, Basic Terminology, Basic Cryptographic Algorithms. Also it includes Cryptographic Random Number Generators, Strength of Cryptographic Algorithms, Cryptanalysis and Attacks on Cryptosystems., Information hiding, Divisor(GCD), (LCM) Least Common Multiple, Modular, Euler Function, Inverse Algorithm Classical Encryption, Monoalphabetic Ciphers, Additive Cipher , Shift Cipher and Caesar Cipher, Multiplicative Ciphers , Affine Ciphers , polybious cipher.</p>			

4

Code	Course/Module Title	ECTS	Semester
WIPR414	Windows Programming	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/0	80	45
Description			
<p>The topics of this course includes General introduction ,Principles of windows programming, Types of outputs , Types of messages , Key board message, Windows message of char, Windows message of paint, Mouse messages, Double click mouse message, Menu introduction design , Menu messages, Sub menus message, Key board accelerators, Non-menu accelerator keys, Overriding the class menu. Dialog box, Active and Deactivate Dialog box, Added buttons and programming, Added list box and programming, Added Text box and programming, Modeless dialog box, Control and Standard Scroll bar, Check control & auto check control, Radio Buttons control, Stand alone control, Cursor design, Icon design.</p>			

5

Code	Course/Module Title	ECTS	Semester
HUCI415	Human Computer Interaction	3	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/1	48	27
Description			
<p>The topics of this course includes Foundations Contexts for HCI, Designing Interaction, User-Centered Design and Testing. Study the approaches to and characteristics of the design process, Techniques for data gathering and Prototyping techniques. Choosing interaction styles and interaction techniques, Mixed Augmented and Virtual Reality</p>			

6

Code	Course/Module Title	ECTS	Semester
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PROJ406	Project	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	0/3/0/1	62	38
Description			

Second Course

1

Code	Course/Module Title	ECTS	Semester
IMPR421	Image Processing	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/1	95	55
Description			
<p>This course includes some topics that related of Image Basic concept (Image digitization, Spatial resolution and quantization, Image file formats). Also deals with Arithmetic operation on image, Logical operation on an image, Image histogram, Histogram modification and Histogram equalization. In addition to Image Geometry (crop, zoom, enlarge) and Image compression..</p>			

2

Code	Course/Module Title	ECTS	Semester
DMDW422	Data Mining and Data Warehousing	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/2	63	37
Description			
<p>This subject study DataWarehouse, What Is a DataWarehouse? A Multidimensional Data Model such as Stars, Snowflakes, and Fact Constellations: Schemas for Multidimensional Databases and Examples for them. OLAP Operations in the Multidimensional Data Model. Understand the Steps for the Design and Construction of Data Warehouses and DataWarehouse Implementation. Then, this subject introduce Data Miming. What Motivated Data Mining? Why Is It Important? So, What Is Data mining? Relational Databases and Data Warehouses are covered. Characterization and Discrimination, Mining Frequent Patterns, Associations, and Correlations, Classification and Prediction, Cluster Analysis, Outlier Analysis, Evolution Analysis. Data Preprocessing also learn, Mining Frequent Patterns, Associations, and Correlations, Classification by Decision Tree Induction.</p>			

3

Code	Course/Module Title	ECTS	Semester
SESE423	Secure Software Engineering	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/2	63	37
Description			
<p>This course includes some topics that related about Fundamentals of secure coding practices covered in other knowledge areas, including SDF and SE. For example, see SE/Software Construction; Software Verification and Validation. • Building security into the software development life cycle (cross- reference SE/Software Processes). Secure design principles and patterns. Secure software specifications and requirements. Secure software development practices (cross-reference SE/Software Construction). Secure testing - the process of testing that security requirements are met (including static and dynamic analysis). Software quality assurance and benchmarking measurements</p>			

4

Code	Course/Module Title	ECTS	Semester
INSM424	Intelligent Search Methods	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/1	95	55
Description			
<p>The topics of this course includes Principles fundamentals of A.I. What means by A.I. and Knowledge Representation Methods. Control strategy of Search Methods such as Blind Search and Heuristic Search. Study What means by Metaheuristic? And explain some Metaheuristic Algorithms.</p>			

5

Code	Course/Module Title	ECTS	Semester
CONE425	Computer Network	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	0/2/0/1	95	55
Description			
<p>The topics of this course includes Introduction to data communications. Networks (distributed processing, Network criteria, physical structure, Network models, Network categories). layered tasks (sender, receiver, carrier, hierarchy, OSI MODEL, TCP Model). Physical layer (Transmission Media) Data link Protocols (Error detection and correction). Network Layer, Transport layer, Application layer</p>			

6

Code	Course/Module Title	ECTS	Semester
PROJ406	Project	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	0/3/0/1	62	38
Description			