الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**Programming 1**
Course Code:	**CS 131**
Program:	**Computer Science/Information Technology**
Department:	**Computer Science**
College:	**College of Computer and Information Science**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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A. Course Identification

1. Credit hours: 4 (4,3,0)
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level 3
4. Pre-requisites for this course (if any)**:**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	77	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	44
2	**Laboratory/Studio**	33
3	**Tutorial**	
4	**Others** (specify)	
	Total	77

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces the students to the fundamentals of programming concepts with their implementation in the C++ programming language. It introduces students to structured, top-down programming design and implementation. This course covers the following topics: problem solving techniques using algorithms and flowcharts, variables, data types, operators, conditional statements, loop structures, functions, arrays, pointers, strings.

2. Course Main Objective

The objectives of the course are: learn basic structured programming concepts, divide a problem into its logical components, gain knowledge of input/output statements, if-then-else statements, while and for loops, functions, gain knowledge of built-in data types, arrays and pointers to solve programming problems, and construct error-free C++ programs.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO1- Identify the basic components of a computer system.	K1
1.2		
1.3		
1...		
2	**Skills :**	
2.1	CLO2- Design an algorithm to solve a given problem using the top-down design approach	S1
2.2	CLO3- Understand the concept of using functions to increase modularity and reusability	S1
2.3	CLO4- Understand and use the three basic programming structures: sequence, selection, repetition.	S1
2...	CLO5- Use arrays, strings and pointers to manipulate data	
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction to Computers**	**7**
2	**Problem solving techniques**	**7**
3	**Variables , Data types, Operators**	**7**
4	**Conditional statements**	7
5	**Repetition statements**	7
6	**Functions, call by value, Call by reference**	7
7	**Arrays, types of arrays**	7
8	**Arrays to functions**	7
9	**Pointers**	7
10	**Strings**	**7**
11	**C++ programming examples**	**7**
	Total	77

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO1- Identify the basic components of a computer system.	Classroom	Quiz, Mid Exam, Lab, Homework, Final Exam
1.2			
1.3			

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	**Skills**		
2.1	CLO2- Design an algorithm to solve a given problem using the top-down design approach	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Homework, Final Exam
2.2	CLO3- Understand the concept of using functions to increase modularity and reusability	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Homework, Final Exam
2.3	CLO4- Understand and use the three basic programming structures: sequence, selection, repetition.	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Homework, Final Exam
2.4	CLO5- Use arrays, strings and pointers to manipulate data	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Homework, Final Exam
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	Week 3	5 %
2	Midterm Exam	Week 6	20 %
3	Quiz 2	Week 7	5 %
4	Lab Exam	Week 11	20 %
5	Programming Assignments	Week 11	10 %
6	Final Exam	Week 12	40 %
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Every faculty will be assigned a number of students in the corresponding department for academic advising. Students can meet the faculty during advising hours or whenever the faculty is in the office during the specified office hours.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• Dietel & Dietel, "C++: How To Program", Prentice Hall, 10th edition (2017).
Essential References Materials	• The C++ Programming Language: Special Edition, Bjarne Stroustrup, Addison-Wesley Professional, 2013. • C++ Programming: From Problem Analysis to Program Design, De D. S. Malik, Cengage Learning, 2012.

	• C++ Programming for the Absolute Beginner, De Dirk Henkemans and Mark Lee, Course Technology, 2009.
Electronic Materials	www.dietel.com
Other Learning Materials	**Dev C++ IDE or Visual C++ Software**

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Laboratory
Technology Resources (AV, data show, Smart Board, software, etc.)	PC with Windows/Linux, LCD Projector, Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	C++ compiler

G. Course Quality Evaluation

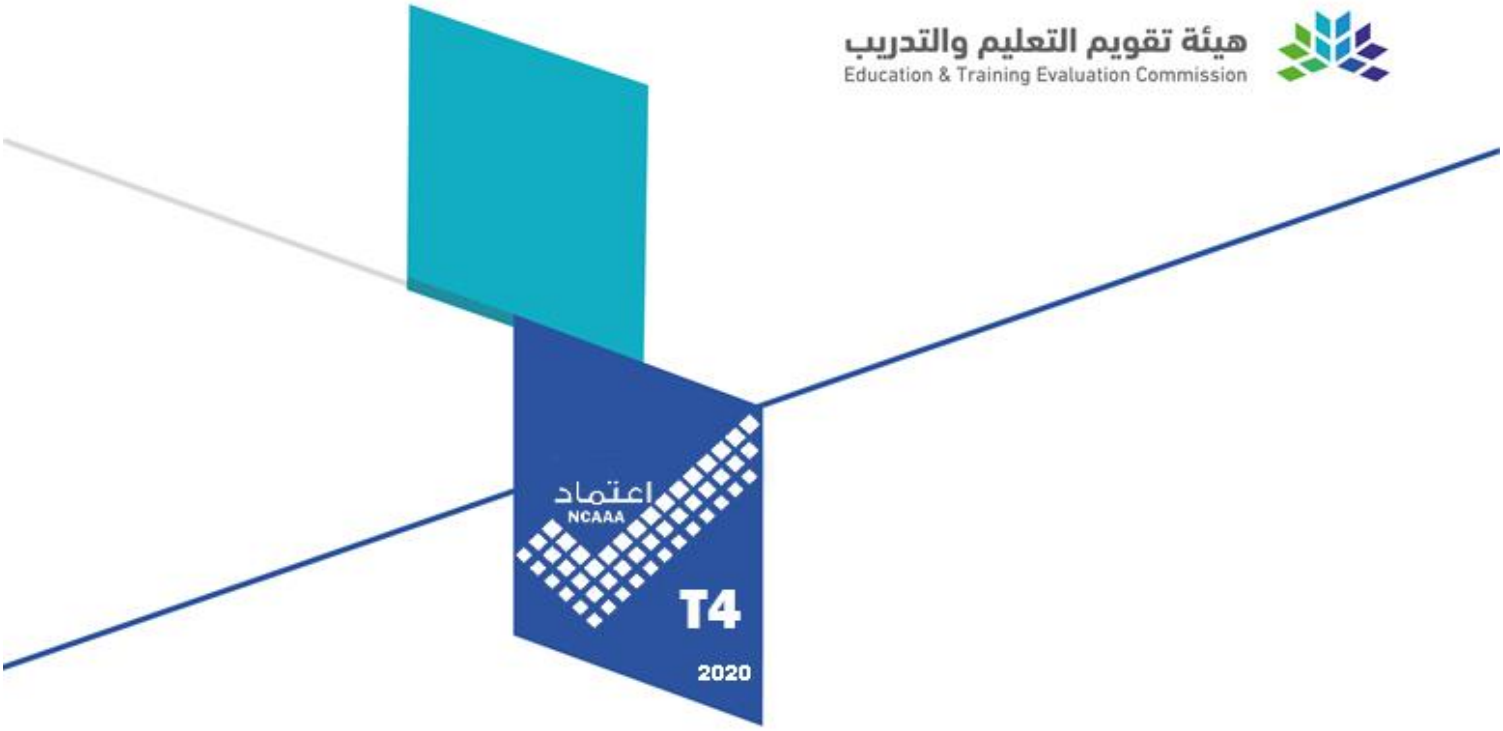
Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Instructure	Direct
Course Survey in the middle of the semester and at the end of the semester (Effectiveness of teaching and assessment)	Students	Indirect
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	Programming II
Course Code:	**CS211**
Program:	**Computer Science**
Department:	**Computer Science**
College:	**Computer and Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities **5**

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2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours: 4(3,2,0)
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level 4
4. Pre-requisites for this course (if any)**:** **CS131 – Programming I**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	55	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	22
3	**Tutorial**	
4	**Others** (specify)	
	Total	55

B. Course Objectives and Learning Outcomes

1. Course Description

This course is an introductory course in object-oriented programming. The fundamental concepts of object-oriented programming will be studied using the C++ programming language.

2. Course Main Objective

The students are expected to be able to:

(a) Understand the basic OO programming concepts.
(b) Compare the OO programming approach against the traditional approach.
(c) Identify the main objects/classes, methods, attributes from given problem specifications.

(d) Design and code small to medium sized problems from the start using the appropriate OO concepts and other concepts introduced (class, inheritance, polymorphism, generic programming etc.)
(e) Create and manipulate Files using the available I/O file streams classes.
(f) Contribute to a group effort to realize an OOP based solution

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	Students will apply formulas and functions of mathematics.	S1
2.2	Students will analyze a programming problem in object-oriented domain and find computing requirements which will map to the given problem and its solution.	S1
2.3	Students will be able to analyze, design and implement a program using object-oriented programming tool and C++ programming language.	S2
2...		
3	**Values:**	
3.1	Students will perform programming and lab related activities in group	V1
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Overview of C++ basic concepts	5
2	Functions and an Introduction to Recursion	5
3	Arrays and Vectors	5
4	Pointers	5
5	Classes and Objects	10
6	Inheritance, Polymorphism, and Operator Overloading	10
7	Templates	5
8	File Processing	5
9	Review	5
Total		55

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2			
…			
2.0	**Skills**		
2.1	Students will apply formulas and functions of mathematics.	Classroom Teaching	Midterm Exam, Final Exam
2.2	Students will analyze a programming problem in object-oriented domain and find computing requirements which will map to the given problem and its solution.	Classroom Teaching	Midterm Exam, Final Exam
2.3	Students will be able to analyze, design and implement a program using object-oriented programming tool and C++ programming language.	Mini Project, Lab Exercises	Lab Based Assignments, Mini Project
3.0	**Values**		
3.1	Students will perform programming and lab related activities in group	Mini Project, Lab Exercises	Lab Project Evaluation
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Exam 1	5	15%
2	Exam 2	8	15%
3	Lab Assignments	11	15%
4	Project	11	15%
5	Final Exam	12	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Two office hours per week are dedicated to students.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	C++ How to Program H. M. Deitel, P.J.Deitel, Prentice Hall, 2016, 10th ed.
Essential References Materials	

Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom, lab, PCs
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, MS Visual Studio
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of assessment	Instructor	Direct
Achievement of CLOs	Instructor	Direct

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**Data Structures**
Course Code:	**CS231**
Program:	**Computer Science**
Department:	**Computer Science**
College:	**College of Computer and Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours:	3 (3+0+1)
2. Course type	
a.	University ☐ College ☑ Department ☐ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Level-6 / 2**
4. Pre-requisites for this course (if any)**:**	**CS 211**
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

The purpose of this course is to provide the students with solid foundations in the basic concepts of programming data structures and algorithms. The main objective of the course is to teach the students how to select and design data structures and algorithms that are appropriate for problems that they might encounter. This course is also about comparing algorithms and studying their correctness and computational complexity. This course offers the students a mixture of theoretical knowledge and practical experience using C++.

2. Course Main Objective

The main objective of the course is to teach the students how to select and design data structures and algorithms that are appropriate for problems that they might encounter. This course is also about comparing algorithms and studying their correctness and computational complexity. This course offers the students a mixture of theoretical knowledge and practical experience using C++.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understanding the variety of data structures such as stack, queue, hash tables, trees and graph	K1
1.2		
1.3		
1...		
2	**Skills :**	
2.1	Able to implement the insert, delete, and search operations on all the structures presented such as the efficiency trade-offs of using arrays, hash tables, linked lists, and trees.	S1
2.2	Implement and evaluate some of data structure such as stack, queue and graph structure is required to solve a problem.	S2
2.3		
2...		
3	**Values:**	
3.1	Students learn how to solve problems using algorithms and data structures. They work as team in mini project and do exam individually	V1
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Data Design and Implementation (algorithm analysis, growth of functions, ADTs)	4
2	Unsorted lists (Array-based, Linked Lists)	4
3	Stacks (Array-based, Linked Lists)	6
4	Queues (Array-based, Linked Lists)	6
5	Programming with Recursion, Binary Search Trees	4
6	Hashing	6
7	Graphs (DFS, BFS)	6
8	Sorting (selection, bubble)	4
9	Searching,	4
10		
11		
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
…			
2.0	**Skills**		
2.1	Able to implement the insert, delete, and search operations on all the structures presented such as the efficiency trade-offs of using arrays, hash tables, linked lists, and trees.	Classroom Teaching	Class Test, Mid Exam, Final Exam
2.2	Implement, and evaluate some of data structure such as stack, queue and graph structure is required to solve a problem.	Mini Project, Lab Exercises	Lab Based Assignments, Mini Project
…			
3.0	**Values**		
3.1	Students learn how to solve problems using algorithms and data structures. They works as team in mini project and do exam individually	Classroom Teaching, Mini Project	Class Test, Mid Exam, Final Exam
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week 4 and 8	5%
2	Assignments	Week 3, 7 and 9	15%
3	Mid Term	Week 7	25%
4	Project	Every Week	15%
5	Final Exam	Week 12	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- Each student is allotted to an academic advisor for guidance and counselling.
- Available for a minimum of 4 hours per week/course, as communicated to the students.
- Student also contacts through social networking websites / D2L/ Email for advice and consultations

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**Nell Dale, "C++ Plus Data Structures", Jones & Bartlet Learning; 5th ed. (2011). ISBN-10: 1449646751, ISBN-13: 978-1449646752.**	
Essential References Materials		
Electronic Materials		
Other Learning Materials	**Dev C++/Visual studio C++**	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	**Class Room, PC laboratory**
Technology Resources (AV, data show, Smart Board, software, etc.)	**LCD Projector, Dev C++/Visual studio C++**
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	CS Council
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Operating System
Course Code:	CS 311
Program:	Computer Science
Department:	Computer Science
College:	College of Computer and Information Sciences
Institution:	Majmaah University

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2. Course Main Objective ..... **Error! Bookmark not defined.**

3. Course Learning Outcomes 3

C. Course Content **4**

D. Teaching and Assessment **6**

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E. Student Academic Counseling and Support **7**

F. Learning Resources and Facilities **7**

1.Learning Resources 7

2. Facilities Required 8

G. Course Quality Evaluation **8**

H. Specification Approval Data **8**

A. Course Identification

1. Credit hours:	**3(3,0,1)**
2. Course type	
a.	University ☐ College ☑ Department ☐ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Level 7**
4. Pre-requisites for this course (if any)**:**	**Data Structure (CS 231)**
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	**55**	**100%**
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	**44**
2	**Laboratory/Studio**	
3	**Tutorial**	**11**
4	**Others** (specify)	
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description

This course is an introduction to the theory and practice behind modern computer operating systems. This course aims to provide a theoretical as well as experimental background of operating system. Topics include OS Component, OS structure, System calls and interfaces, Process management, Resource scheduling and management (of the CPU, memory, etc.), Synchronization of concurrent processes, Deadlocks, Memory management, Virtual memory, File System Structure & implementation, Mass-storage structure and I/O Systems.

2. Course Main Objective

Aim of the course is to understand general structure of an operating system and its functions, key concepts such as multiprogramming, understand the role of operating systems in management of computer resources such as processes, memory, CPU, files,

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disks, input output subsystems and apply important methods and algorithms for scheduling the different activities during the operation of a computer.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO 1- Identify and Discuss the issues and problems involved in the design of operating systems.	K1
1.2	CLO 2- Identify issues of process Management including Process Structure, Scheduling, Synchronization and Deadlock.	K1
1.3	CLO 5. Identify and Discuss the issues related to File System Structure, Mass-Storage Structure, I/O Systems I/O Sub-systems	K1
2	**Skills :**	
2.1	CLO 3. Demonstrate scheduling algorithms, synchronization techniques and Deadlock recovery and avoidance algorithms.	S2
2.2	CLO4. Demonstrate memory management issues including advance techniques of paging, segmentation and virtual memory.	S2
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction & OS-Structures • Introduction • Different OSs (Mainframe, Desktop, Multiprocessor, Distributed, Clustered, Real-Time, Handheld). • Computer-System Structures (I/O, Storage, Storage Hierarchy, Hardware Protection, Network). • OS-Structures (Components, Services, System Calls, System structure, Virtual Machines, System Design & Implementation).	6
2	Process Management • Processes • Process Concept • Process Scheduling • Operations on Processes • Cooperating Processes • Inter-process Communication • Communication in Client-Server	4

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3	Threads • Threads • Multithreading models • Threading Issues • Pthreads, Solaris 2 threads, Windows 2000 threads, Linux Threads, Java Threads	4
4	Scheduling • CPU Scheduling • Scheduling Criteria • Scheduling Algorithms, • Algorithm Evaluation • Process Scheduling Models	4
5	Process Synchronization • Process Synchronization • Critical-Section Problem • Synchronization Hardware • Semaphores • Critical Regions • Monitors • Classical Problems	6
6	Deadlocks • Deadlocks • Deadlock Characterization • Methods for Handling Deadlocks (Prevention, Avoidance, Detection) • Recovery from Deadlock	4
7	Memory Management • Address Binding Concept • Swapping • Contiguous Memory Allocation • Paging • Segmentation • Segmentation with Paging Virtual Memory • Demand Paging • Page Replacement • Allocation of frames • Thrashing	7
8	Storage Management • File-System Interface • File Concept	4

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	• Access Methods • Directory Structure • File-System Mounting • File Sharing • Protection	
9	File-System Implementation • File-System Structure • File-System Implementation • Directory Implementation • Allocation Methods • Free-Space management • Efficiency and Performance • Recovery	4
.10	I/O Systems • I/O Hardware • Application I/O Interface • Kernel I/O Subsystem • Transforming I/O to Hardware Operations • Streams • Performance	4
11	Mass-Storage Structure • Disk Structure • Disk Scheduling • Disk Management • Swap-Space Management • RAID Structure	4
	Review	4
Total		**55**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO 1- Identify and Discuss the issues and problems involved in the design of operating systems.	Classroom Teaching	Test, Mid Exam, Final Exam, Assignments
1.2	CLO 2- Identify issues of process Management including Process Structure, Scheduling, Synchronization and Deadlock.	Classroom Teaching	Test, Mid Exam, Final Exam, Assignments

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.3	CLO 5. Identify and Discuss the issues related to File System Structure, Mass-Storage Structure, I/O Systems I/O Sub-systems	Classroom Teaching	Test, Mid Exam, Final Exam, Assignments
2.0	**Skills**		
2.1	CLO 3. Demonstrate scheduling algorithms, synchronization techniques and Deadlock recovery and avoidance algorithms.	Exercise/ Teaching in Lab	Lab Based Assignments, Lab Test, Mid Exam, Final Exam
2.2	CLO4. Demonstrate memory management issues including advance techniques of paging, segmentation and virtual memory.	Exercise/ Teaching in Lab	Lab Based Assignments, Lab Test, Mid Exam, Final Exam
…			
3.0	**Values**		
3.1			
3.2			
3.3			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	Week 3	10%
2	Assignment 1	Week 3	10%
3	Midterm	Week 6	20%
4	Assignment 2	Week 7	10%
5	Quiz 2	Week 9	10%
6	Final Exam	Week 11	40%
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• **Operating System Concepts, Silberschatz, Galvin, and Gagne, 10th edition, Wiley, 2018.**
Essential References Materials	• **Charles Crowley, "Operating Systems: A Design Oriented Approach", Tata McGraw Hill 1999.** • **Modern Operating Systems, Tanenbaum, 3rd edition, Prentice Hall, 2007.**

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	• **Operating Systems: Design and Implementation, Tanenbaum and Woodhull, Prentice**
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Course instructor	Direct
Course Survey in the middle of the semester and at the end of the semester (Effectiveness of teaching and assessment)	Students	Indirect
Extent of achievement of course learning outcomes	Students	Indirect
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	CS Council
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Software Engineering
Course Code:	**CS 312**
Program:	**Computer Science**
Department:	**Computer Science**
College:	**College of Computer and Information Science**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 5

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours: (3+0+1)	
2. Course type	
a. University ☐ College ☐ Department ☒ Others ☐	
b. Required ☒ Elective ☐	
3. Level/year at which this course is offered: Level 7	
4. Pre-requisites for this course (if any)**:** N/A	
5. Co-requisites for this course (if any)**:** N/A	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	40
2	**Laboratory/Studio**	10
3	**Tutorial**	5
4	**Others** (specify)	
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description

This is a reading and discussion subject on issues in the engineering of software systems and software development project design. It includes the present state of software engineering, what has been tried in the past. Topics may differ in each offering but will be chosen from: the software process and lifecycle; requirements and specifications; design principles; formal analysis, and reviews; quality management and assessment; product and process metrics; COTS and reuse; evolution and maintenance; team organization and people management; and software engineering aspects of programming languages.

2. Course Main Objective

1 Understand the activities that are involved in the software development
2 Discuss various software process models
3 Explain the concepts of architectural design and detailed design
4 Understand the notation of Unified Modeling Language for modeling requirements
5 Describe the process of various testing techniques

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understand the activities that are involved in the software development	K1
1.2	Discuss various software process models	K1, S1
1.3	Explain the concepts of architectural design and detailed design	S2
1...		
2	**Skills :**	
2.1	Understand the notation of modelling using Unified Modelling Language	S2, S3, S4, V1
2.2	Describe the process of various testing techniques.	K1, S2
2.3	Understand the process of software project management	V1, V2
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Software Engineering	6
2	Requirements Engineering	10
3	Software and project metrics	6
4	Software processes	6
5	Software project management	7
6	Software quality assurance	10
7	Unified Modeling Language (UML)	10
Total		55

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Understand the activities that are involved in the software development		Quiz, Mid and Final Exams
1.2	Discuss various software process models		Quiz, Mid and Final Exams
1.3	Explain the concepts of architectural design and detailed design		Quiz, Mid and Final Exams, Project
2.0	**Skills**		
2.1	Understand the notation of modelling using Unified Modelling Language		Exercises, Group Project, Mid
2.2	Describe the process of various testing techniques.		Quiz, Mid and Final Exams

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.3	Understand the process of software project management		Quiz, Mid and Final Exams
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm Exam	8	20
2	Project	9	15
3	Homework and Assignments	5, 9	10
4	Quiz	4,8	10
5	Participation	1-9	5
6	Final Exam	11	40
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Ian Sommerville, "Software Engineering", Addison Wesley; 9th ed. (March 2010). ISBN-10: 0137035152, ISBN-13: 978-0137035151
Essential References Materials	ITimothy Lethbridge, Robert laganiere, "Object-Oriented Software Engineering: Practical Software Development using UML and Java", Mc Graw Hill;2nd ed. (December 2004). ISBN-10: 0077109082, ISBN-13: 978-0077109080
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation	Classroom, Computer Lab

Item	Resources
(Classrooms, laboratories, demonstration rooms/labs, etc.)	
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, UML design software (Visual Paradigm)
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

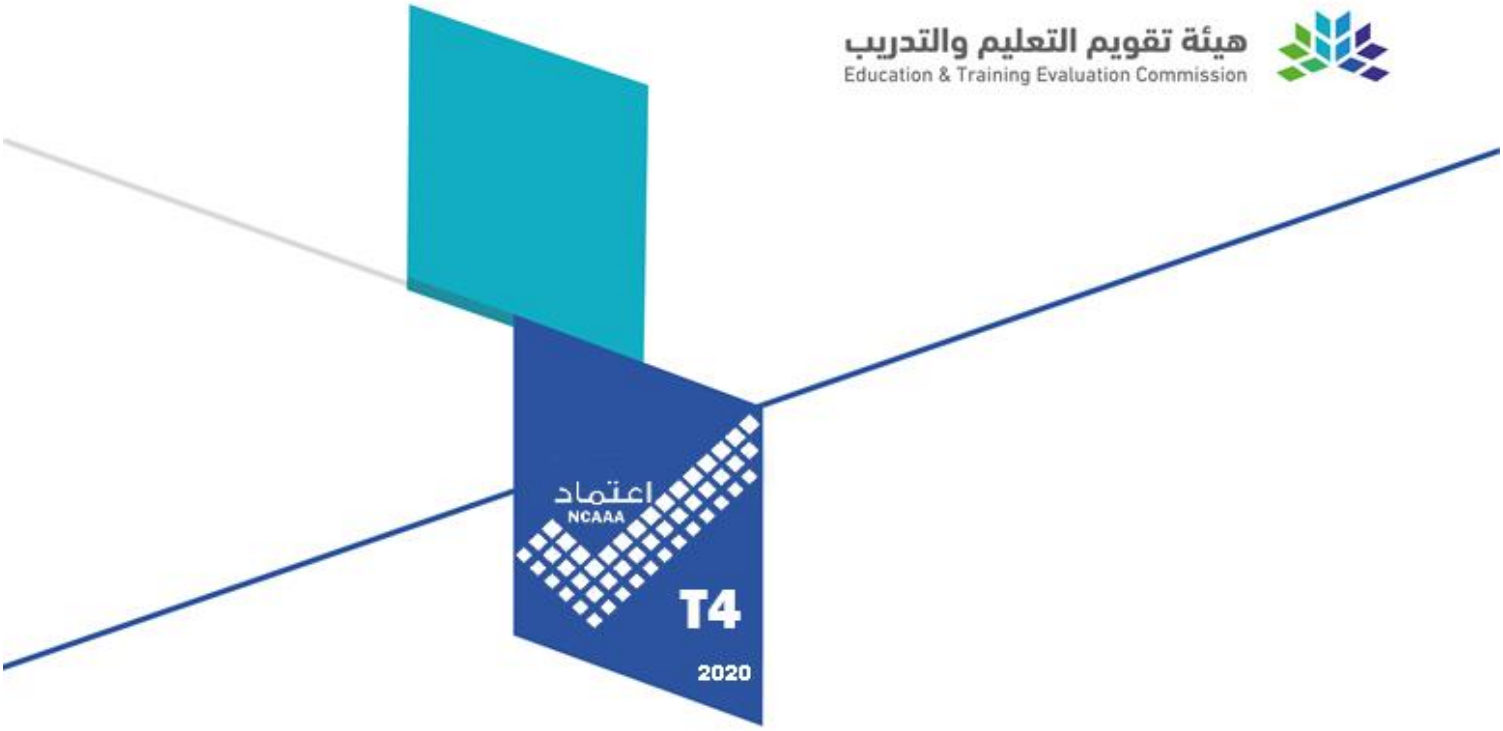
Evaluation Areas/Issues	Evaluators	Evaluation Methods
Attainment of CLO	Instructor, TA	Performance in the exam for a particular CLO(s)
Quality of learning resources	Convener , instructors, HOD	Regular follow ups

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	**Computer Organization**
Course Code:	**CS 322**
Program:	**Computer Science/Information Technology**
Department:	**Computer Science**
College:	**College of Computer and Information Science**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours: 3(3,0,1)
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level 8
4. Pre-requisites for this course (if any)**: MH 121**
5. Co-requisites for this course (if any)**: N.A.**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces students with the fundamentals of computer organizations and architectures. Topics included are: Organization and Architecture, Computer Components, Computer Function, Interconnection Structures, Bus Interconnection, Binary Numbers, The Decimal System. The Binary System, Converting between Binary and Decimal, Hexadecimal Notation, Binary Multiplication, Floating Point Numbers Boolean functions and logic gate, Design of combinational Circuits Instruction Set Architecture, Assemblers, Assembly Language Programming, External Memory, Cache Memory, Paging & Segmentation, Design of Data Path, Design of Control Unit, Instruction Execution Characteristics, Reduced Instruction Set Architecture, The RISC versus CISC Controversy.

2. Course Main Objective

The course aims to enables the students to learn the internal working of a computer. The students study the basics of memory organization, number systems and their conversions, design of logic circuits and functioning of CPU.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Identify the basic components and interconnections of computer system.	K1
1.2	Understand the details of numbering systems conversion and representation.	K1
1.3		
1.4		
2	**Skills :**	
2.1	Design logic circuits by applying the concepts of Boolean Algebra and K-Maps	S1
2.2	Apply assembly language programming to solve problems.	S1
2.3	Describe the impact of memory caching and hierarchy options on the design of computer systems.	S1
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Computer Components, Computer Function, Interconnection Structures, Bus Interconnection	4
2	Numbering systems, converting between Binary and Decimal, Hexadecimal systems	4
3	Computer Arithmetic (addition, subtraction and multiplication)	4
4	Boolean Function simplification	4
5	Karnaugh maps and Logic Gates	4
6	Design of combinational Circuits	4
7	MARIE Instruction Set Architecture	4
8	Assembly Language Programming	4
9	Cache memory organization	4
10	Virtual memory organization	4
11	Reduced Instruction Set Architecture	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Identify the basic components and interconnections of computer system.	Classroom Lectures, Group Discussions, Lab demonstrations, Home assignments, Tutorial classes	Written Tests, Quizzes, Homework, Final Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	Understand the details of numbering systems conversion and representation.	Classroom Lectures, Group Discussions, Home assignments, Tutorial classes	Written Tests, Quizzes, Homework, Final Exam
1.3			
1.4			
2.0	**Skills**		
2.1	Design logic circuits by applying the concepts of Boolean Algebra and K-Maps	Classroom Lectures, Group Discussions, Lab demonstrations, Home assignments, Tutorial classes	Written Tests, Quizzes, Homework, Final Exam, lab assignments, mini-project
2.2	Apply assembly language programming to solve problems.	Classroom Lectures, Group Discussions, Lab demonstrations, Home assignments, Tutorial classes	Written Tests, Quizzes, Homework, Final Exam
2.3	Describe the impact of memory caching and hierarchy options on the design of computer systems.	Classroom Lectures, Group Discussions, Home assignments, Tutorial classes	Written Tests, Quizzes, Homework, Final Exam
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Home Assignments/class discussions	Week 13	10%
2	Class Test 1	Week 4	10%
3	Mid-Exam	Week 8	20%
4	Class Test2	Week 12	10%
5	Lab assignments/mini project	Week 14	10%
6	Final Exam	Week 16	40%
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Every faculty will be assigned a number of students in the corresponding department for academic advising. Students can meet the faculty during advising hours or whenever the faculty is in the office during the specified office hours.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	1. The Essentials of Computer Organization and Architecture, Linda Null and Julia Lobor, Jones and Bartlett 2018. ISBN-13: 978-1284123036

Essential References Materials	2. Computer Organization and Architecture: Designing for performance by William Stallings, Pearson, Global Edition, 2016, ISBN-13: 978-9332570405 3. Logic & Computer Design Fundamentals (5th Edition) by by M. Morris R. Mano , Charles R. Kime, Tom Martin, Pearson, 2015. ISBN-13: 978-0133760637
Electronic Materials	https://marie.js.org/
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom, laboratory
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, smart board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Digital training board

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Instructure	Direct
Course Survey in the middle of the semester and at the end of the semester (Effectiveness of teaching and assessment)	Students	Indirect
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	ENGLISH 1
Course Code:	EN111
Program:	Computer Science- Information Technology
Department:	Computer Science- Information Technology
College:	College of Computer & Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities 5

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation 6

H. Specification Approval Data 6

A. Course Identification

1. Credit hours: 5 (2,6,0)
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: L 1
4. Pre-requisites for this course (if any)**:**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	88	100
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	22
2	**Laboratory/Studio**	66
3	**Tutorial**	
4	**Others** (specify)	
	Total	88

B. Course Objectives and Learning Outcomes

1. Course Description

The goal of this course is to develop students' proficiency in English. It aims to endorse the four language skills in general and particularly speaking and writing. In addition, students will learn specialist terminology related different technical fields including CS and IT as branches of sciences. This course is intended to provide students of Computer Sciences and IT with more advanced and specialized English needed for studying their major and functioning in their future careers.

2. Course Main Objective

An ability to communicate effectively with a range of audiences

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	communicate with basic technical vocabulary orally and in writing.	S3
2.2	Use properly related technical terms and vocabulary.	S3
2.3	Master grammatical structures related to technical language.	S3
2.4	Read various types of technical texts and charts with reasonable comprehension using a variety of reading skills such as skimming, scanning, and reading for details.	S3
2.5	Write short guided texts using relevant vocabulary, basic sentence structure, reasonably correct spelling, and, punctuation.	S3
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Check-up	8
2	Parts (1)	8
3	Parts (2)	8
4	Movement	8
5	Flow	8
6	Materials	8
7	Specifications	8
8	Reporting	8
9	Troubleshooting	8
10	Safety	8
11	Cause and effect	8
	Total	88

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			

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Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
…			
2.0	**Skills**		
2.1	communicate with basic technical vocabulary orally and in writing.	Presentation-mini project	Oral tests
2.2	Use properly related technical terms and vocabulary.	lecturing	quizzes
2.3	Master grammatical structures related to technical language.	Lecturing ,lab	Quizzes –exams
2.4	Read various types of technical texts and charts with reasonable comprehension using a variety of reading skills such as skimming, scanning, and reading for details.	**Lecturing , lab**	**Exams, quizzes**
2.5	Write short guided texts using relevant vocabulary, basic sentence structure, reasonably correct spelling, and, punctuation.	lab	Assignment
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	2	5
2	Quiz 2	4	5
3	Oral Test	Every week	5
4	midterm	6	20
5	Final exam	13	40
6	presentation	every week	20
7	assignment	Week 10	5
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

4 office hours/ week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Technical English 1 Second Edition	David Bonamy	Pearson 2008

Essential References Materials	
Electronic Materials	Saudi Digital Library
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom , lab
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	ENGLISH 2
Course Code:	**EN122**
Program:	**Computer Science- Information Technology**
Department:	**Computer Science- Information Technology**
College:	**College of Computer & Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support 5

F. Learning Resources and Facilities 5

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation 6

H. Specification Approval Data 6

A. Course Identification

1. Credit hours:	**3 (1,3,0)**
2. Course type	
a.	University ☐ College ☑ Department ☐ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**L 2**
4. Pre-requisites for this course (if any)**:**	**EN 111**
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	11
2	**Laboratory/Studio**	33
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course is intended to provide students of Computer Sciences and IT with more advanced and specialized Computing English. The objective is to further endorse students' proficiency in English. It seeks to support language skills and particularly speaking and writing.

2. Course Main Objective

An ability to communicate effectively with a range of audiences

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	

CLOs		Aligned PLOs
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	Use advanced computing vocabulary orally and in writing.	S3
2.2	Learn grammatical structures related to English for computing.	S3
2.3	Read various types of computing English texts and charts .	S3
2.4	Write essays using relevant vocabulary, developed sentence structure, correct spelling, and, punctuation.	S3
2.5		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Everyday uses of computers	4
2	Types of Computers	4
3	Parts of a computer	4
4	Input/output/storage devices	4
5	GUI	4
6	Networks	4
7	Communications	4
8	Databases and Spreadsheets	4
9	Programming	4
10	Languages	4
11	Future trends	4
	Total	44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	Use advanced computing vocabulary orally and in writing.	Presentation-mini project	Oral tests

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.2	Learn grammatical structures related to English for computing.	Lecturing lab	quizzes
2.3	Read various types of computing English texts and charts	lab	Quizzes –exams
2.4	Write essays using relevant vocabulary, developed sentence structure, correct spelling, and, punctuation	**lab**	Assignment
2.5			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	2	5
2	Quiz 2	4	5
3	Oral Test	Every week	5
4	midterm	6	20
5	Final exam	13	40
6	presentation	every week	20
7	assignment	Week 10	5
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

4 office hours/ week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Eric H Glendinning, John Mc Ewan (2009) *Basic English for Computing (Revised and Updated (Course book),* Oxford.
Essential References Materials	Santiago Remacha Esteras (2008) *Infotech English for Computer Users (Student's book),* Oxford.
Electronic Materials	Saudi Digital Library
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom , lab
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

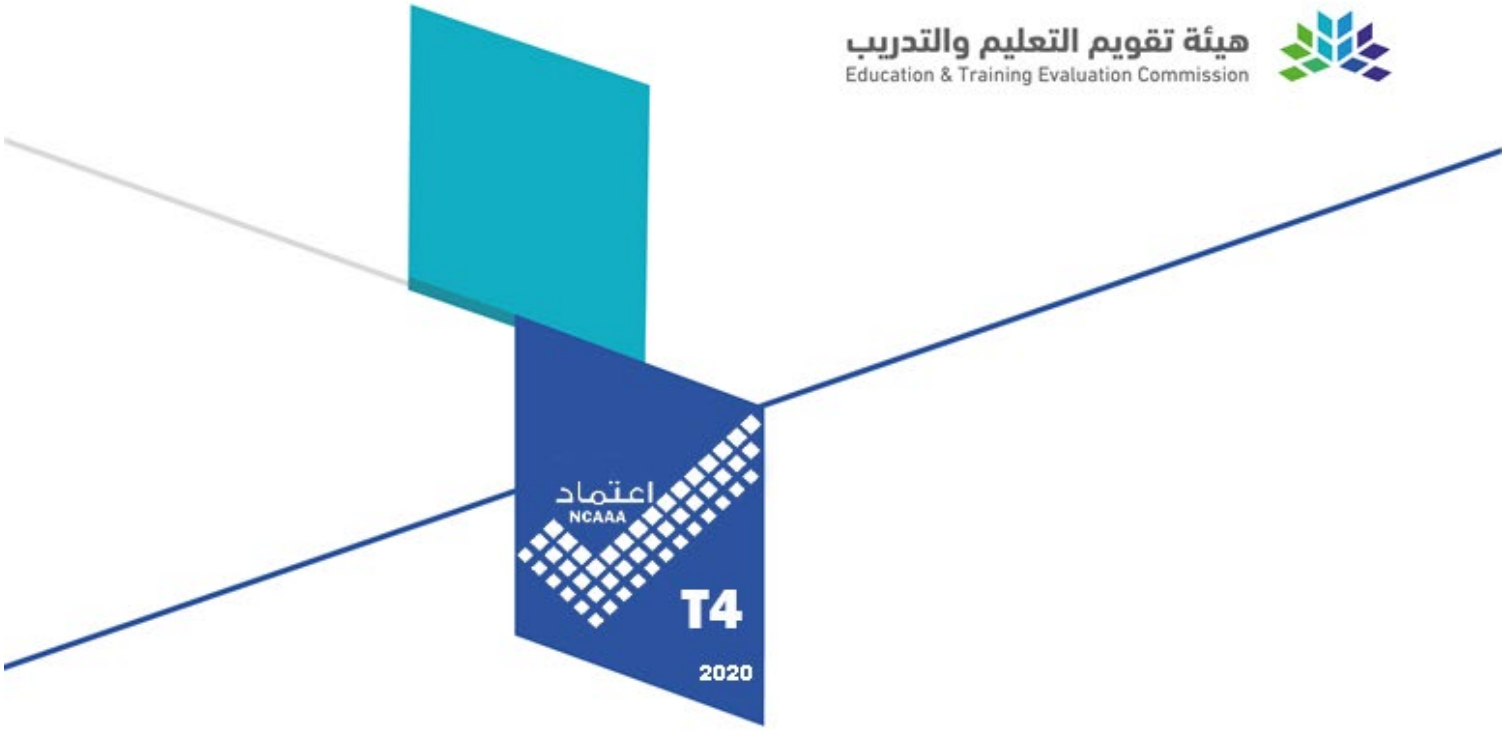
Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	Technical English 1	
Course Code:	EN212	
Program:	Computer Science- Information Technology	
Department:	Computer Science- Information Technology	
College:	College of Computer and Information Sciences	
Institution:	Majmaah University	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities 6

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation 6

H. Specification Approval Data 7

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level 4
4. Pre-requisites for this course (if any)**: EN122**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		
2	**Blended**		
3	**E-learning**	22	100%
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	22
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description

The course aims to consolidate student's previous knowledge of English, and bring it up to an advanced level which enables them to communicate orally and in writing in a variety of contexts. This course provides students with a solid foundation of basic sentence form and function. It concentrates on grammatical structures, vocabulary expressions often used in technical and professional contexts.

2. Course Main Objective

To enable students to communicate effectively in a variety of contexts.

To enable students to communicate effectively in the domain of technology.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	Comprehend and communicate with technical vocabulary orally and in writing.	S3
2.2	Reinvest major-related technical terms and vocabulary.	S3
2.3	Use grammatical structures related to technical language.	S3
2.4	Read various types of technical texts	S3
2.5	Write essays using relevant vocabulary, basic sentence structure, reasonably correct spelling, and, punctuation.	S3
3.1	values	
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Action	**2**
2	Work	**2**
3	Comparison	**2**
4	Processes	**4**
5	Descriptions	**2**
6	Procedures	2
7	Services	2
8	Energy	2
9	Midterm Exam	2
10	Revision	2
	Total	22

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	Comprehend and communicate with technical vocabulary orally and in writing.	Oral/written communication, seminar lecture	Presentation Midterm Final exams
2.2	Reinvest major-related technical terms and vocabulary.	Oral/written communication, seminar	Presentation
2.3	Use grammatical structures related to technical language.	Lecture	Quizzes
2.4	Read various types of technical texts	Oral/written communication, seminar lecture	Midterm Final exams
2.5	Write essays using relevant vocabulary, basic sentence structure, reasonably correct spelling, and, punctuation	lecture Oral/written communication, seminar	Midterm final exams Reports
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week 4, Week 10	10%
2			
3	Mid Term Exam	Week 6	20%
4	report	Week 10	10%
5	presentation	Every Week	15%
6	Class Participation	Every Week	5%
7	Final Exam	Week 13	40%
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice : Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	David Bonamy (2008) *Technical English 2 (Course book),* Pearson Longman
Essential References Materials	
Electronic Materials	Blackboard
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

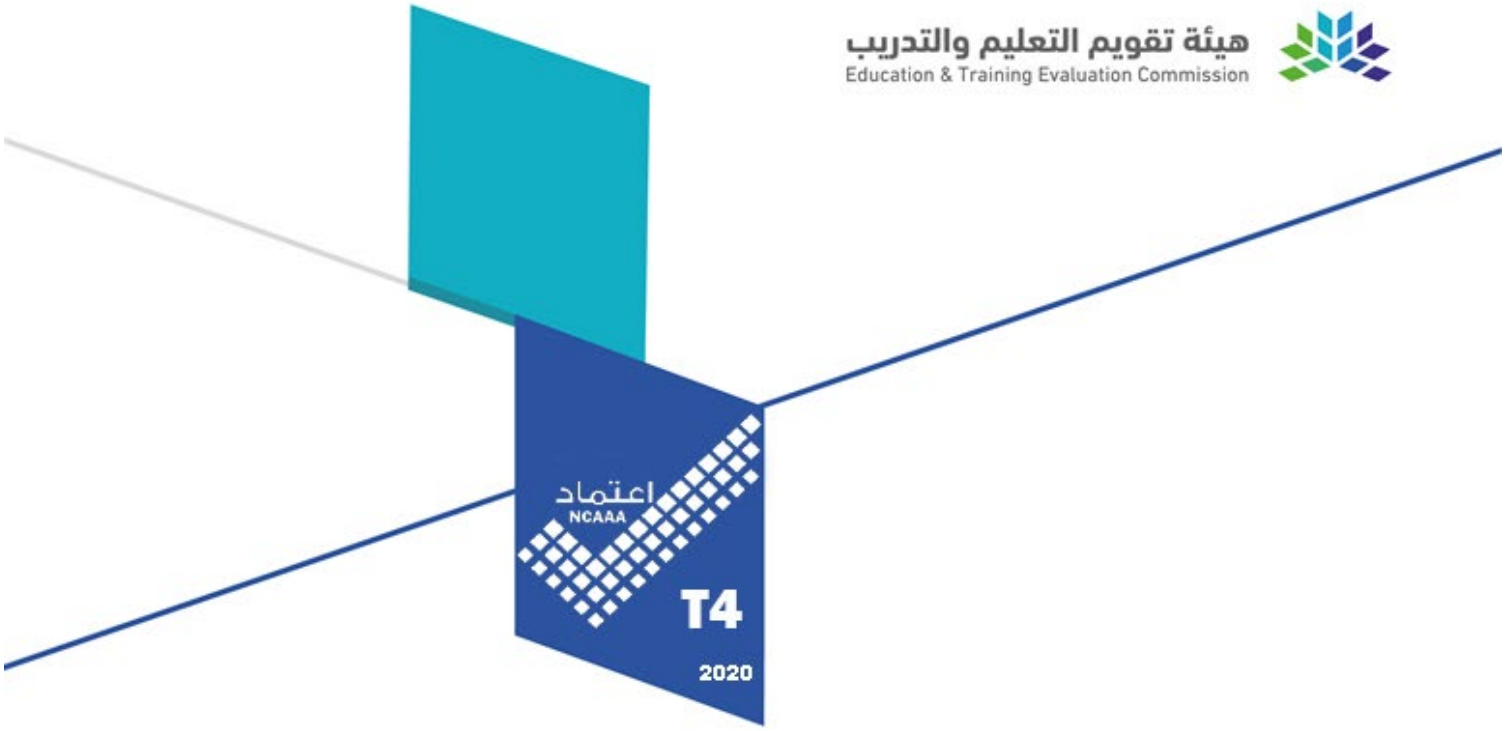
الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	Technical English 2	
Course Code:	EN 221	
Program:	Computer Science- Information Technology	
Department:	Computer Science- Information Technology	
College:	College of Computer and Information Sciences	
Institution:	Majmaah University	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support 6

F. Learning Resources and Facilities 6

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation 7

H. Specification Approval Data 7

A. Course Identification

1. Credit hours:	**2(2,0)**
2. Course type	
a.	University ☐ College ☑ Department ☐ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Level 5**
4. Pre-requisites for this course (if any)**:**	**EN212**
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		
2	**Blended**		
3	**E-learning**	22	100
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	22
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description

The general goal of this course is to develop students' proficiency in technical English and in the four language skills in general and in speaking and writing in particular. In addition, students will learn specialist terminology related to computer science and IT. Building on the content of Technical English 1, this course is intended to provide students of Computer Sciences and IT with more advanced and specialized technical English needed for studying their major and functioning in their future careers.

2. Course Main Objective

1	To enable students to recognize and communicate with advanced computing terminology effectively in a variety of professional contexts.
2	To enable the students to comprehend technical texts that cover a wide range of topics in their field and use grammatical structures related to technical language.
To write paragraphs and reports using technical language to describe a technical topic.	

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	Comprehend and communicate with advanced computing language.	S3
2.2	Read technical texts that cover topics in the field.	S3
2.3	Use grammatical structures related to technical language.	S3
2.4	Comprehend abbreviations as they relate to computing and information technology.	S3
2.5	Write essays and reports using sequence, fact, description, compare contrast strategies and note taking.	S3
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Computer Users	**2**
2	Computer Architectures	**2**

3	Graphical User Interfaces	**2**
4	Networks	**2**
5	The Internet	**2**
6	The World Wide Web	2
7	Websites	2
8	Software Engineering	2
9	People in Computing	2
10	Recent Developments in IT	2
11	Interview Electronic Publishing	2
	Total	22

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	Comprehend and communicate with advanced computing language .	Oral/Written Communication, Seminar, lecture	Presentation, Midterm Final exams
2.2	Read technical texts that cover topics in the field.	Oral/Written Communication, Seminar, lecture	Presentation, mini projects
2.3	Use grammatical structures related to technical language.	Oral/Written Communication, Seminar, lecture	Quizzes
2.4	Comprehend abbreviations as they relate to computing and information technology.	Oral/Written Communication, Seminar, lecture	**Quizzes**
2.5	Write paragraphs and reports using sequence, fact, description, compare contrast strategies and note taking.	Oral/Written Communication, Seminar, lecture	Midterm final exams Reports
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week 4, Week 11	10%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
2			
3	Mid Term Exam	Week 6	20%
4	report	Week 11	10%
5	presentation	Every Week	15%
6	Class Participation	Every Week	5%
7	Final Exam	Week 12	40%
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**E. Glendining and J.M c Ewan** (2009) Oxford English for Information Technology *(Course book),* **Oxford**
Essential References Materials	
Electronic Materials	Blackboard
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Fundamentals of Database
Course Code:	IS 213
Program:	Computer Science / Information Technology
Department:	Information Systems
College:	College of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours: 3 (3+0+1)
2. Course type **a.** University ☐ College ☐ Department √ Others ☐ **b.** Required √ Elective ☐
3. Level/year at which this course is offered: Level-4
4. Pre-requisites for this course (if any)**:** CS 131
5. Co-requisites for this course (if any)**:** CS 211

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	44	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	33
2	Laboratory/Studio	
3	Tutorial	11
4	Others (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course includes the following topics:
Database concepts and architecture; data models, database schemes and instances, DBMS and the concept of program-data independence, database languages and interfaces, database models, relational data model and relational algebra, relational model constraints; domains, keys, and integrity constraints, the structured query language (SQL); data definition, queries, update, statements, and views in SQL, database design; functional dependencies, normal forms.

2. Course Main Objective

The main purpose for this course, Understand the basics and concepts of database systems. Design, implement and evaluate a computer-based DB system to meet desired users' needs, use professionally Structured Query Language (SQL) and understand SQL processing

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2	CLO(2) Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles	K2
1.3		
1...		
2	**Skills :**	
2.1		
2.2	CLO(4) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline	S2
2.3		
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
.1	Database concepts and architecture	4
.2	Data models, database schemes and instances	4
.3	DBMS and the concept of program-data independence	4
.4	Database languages and interfaces	4
.5	Database models, relational data model and relational algebra, relational model constraints	4
.6	Domains, keys, and integrity constraints, Structured query language (SQL); data definition, queries	4
.7	Update, statements	4
.8	DCL Statements, Views in SQL	4
.9	Database design	4
.10	Functional dependencies	4
.11	Normal forms and Examples	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2	CLO(2) Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles	lecture, lab	Class Test, Mid Exam, Final Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
…			
2.0	**Skills**		
2.1			
2.2	CLO(4) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline	lecture, lab	Group Assignments, Mini Project
…			
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week 3, Week 8	20%
2	Assignments	Week 3, Week 9	10%
3	Mid Term Exam	Week 5	20%
4	Tutorial	Every Week	10%
5	Final Exam	Week 12	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Carlos Coronel, Steven Morris, and Peter Rob, Database Principles: Fundamentals, Design, Implementation, and Management, Cengage Learning, 10th edition, 2013.
Essential References Materials	Jeffry D Ulman, Jenifer Widom, a first course in Database Systems, Pearson New International Edition,3rd edition, 2007 Ramakrishnan, Gehrke, Database Management Systems, Mc Graw Hill, 3rd edition, 2002
Electronic Materials	IEEE Computer Society – Participation in Webinars and discussions through blogs
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey
Achievement of CLOs	Instructor	Direct

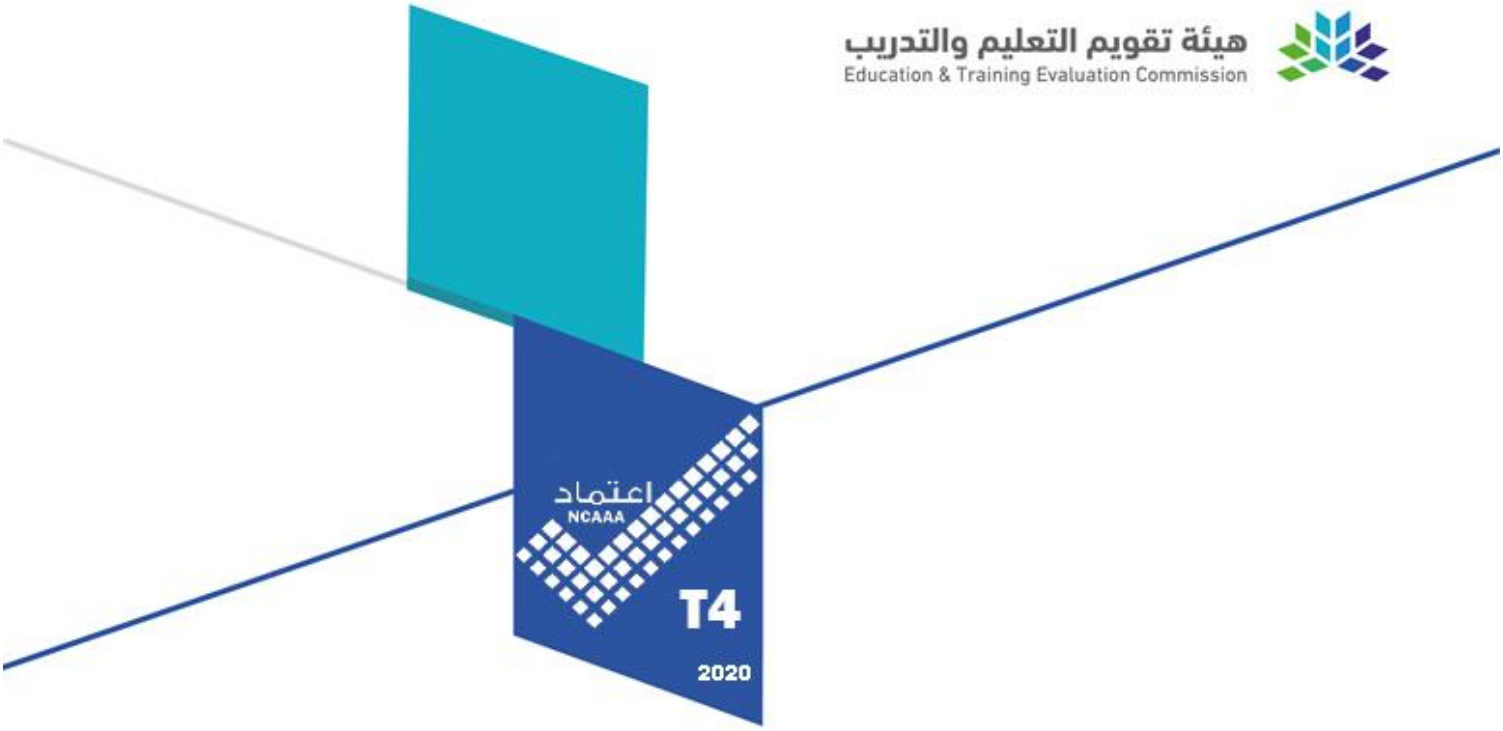
Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Database Management Systems
Course Code:	IS 233
Program:	Information Technology
Department:	Information Systems
College:	College of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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D. Teaching and Assessment **4**

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods 4

2. Assessment Tasks for Students 5

E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 5

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours:	**3 (3+0+1)**
2. Course type	
a.	University ☐ College ☐ Department ■ Others ☐
b.	Required ■ Elective ☐
3. Level/year at which this course is offered:	**Level-6**
4. Pre-requisites for this course (if any)**:**	**IS 213**
5. Co-requisites for this course (if any)**:**	**NA**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	44	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	33
2	Laboratory/Studio	
3	Tutorial	11
4	Others (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course is introducing the following topics

DBMS architecture and administration; centralized and client-server approaches, system catalog, and data dictionary, transaction management; concepts, characteristics, and processing, recovery techniques, concurrency control techniques: serializability, deadlock, locking schemes, time-stamp ordering, multi-version, and optimistic techniques, DB security, distributed databases, distributed DBMS, data fragmentation and replication, and distributed transactions management

2. Course Main Objective

After successful completion of this course, student will be able to-

1. Recognize the main functions of database management.
2. Be able to analyse an algorithm for query processing and to optimizing it.
3. Learn transaction management, concurrency and recovery of a database.
4. Recognize the importance of database security and authentication of users.
5. Understand the need for distributed systems and how databases are distributed.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO(1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions	K1
1.2		
1.3		
2	**Skills :**	
2.1		
2.2	CLO(4) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline	S2
2.3		
3	**Values:**	
3.1		
3.2		
3.3		

C. Course Content

No	List of Topics	Contact Hours
1.	DBMS architecture and administration; centralized and client-server approaches System catalog, and data dictionary	4
2.	Transaction management; concepts, characteristics, and processing	4
3.	Recovery techniques	4
4.	Concurrency control techniques	4
5.	Serializability & Deadlock	4
6.	Locking schemes	4
7.	Time-stamp ordering, multi-version, and optimistic techniques	4
8.	DB security	4
9.	Distributed databases & Distributed DBMS	4
10.	Data fragmentation and replication	4
11.	Distributed transactions management	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO(1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions	lecture, lab	Class Test, Mid Exam, Final Exam
1.2			
…			
2.0	**Skills**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.1			
2.2	CLO(4) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline	lecture, lab	Group Assignments, Mini Project
3.0	**Values**		
3.1			
3.2			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week 3, Week 8	20%
2	Assignments	Week 3, Week 9	10%
3	Mid Term Exam	Week 5	20%
4	Tutorial	Every Week	10%
5	Final Exam	Week 12	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Carlos Coronel, Steven Morris, and Peter Rob, Database Principles: Fundamentals, Design, Implementation, and Management, Cengage Learning, 10th edition, 2013.
Essential References Materials	• Jeffry D Ulman, Jenifer Widom, a first course in Database Systems, Pearson New International Edition,3rd edition, 2007 • Ramakrishnan, Gehrke, Database Management Systems, Mc Graw Hill, 3rd edition, 2002
Electronic Materials	• IEEE Computer Society – Participation in Webinars and discussions through blogs
Other Learning Materials	YouTube for extra tutorial SQL Lab, Cloud oracle apps, research papers

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey
Achievement of CLOs	Instructor	Direct

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

College of Computer and Information Sciences
كلية علوم الحاسب والمعلومات

جامعة المجمعة
Majmaah University

COURSE SYLLABUS

DEPARTMENT OF INFORMATION TECHNOLOGY

FALL 2022

Course Code	Course Title
IS 333	**SOFTWARE PROJECT MANAGEMENT**

Course Credit : 3 (3,0,1)
Pre-requisite : 100 Credits
Instructor : Dr. Badr Almutairi
Department of Information Science
College of Computer and Information Sciences
Majmaah University
Email: b.algoian@mu.edu.sa
Course Time(s) : Sunday 08:00 PM - 10:00 PM, Monday 08:00 PM - 10:00 PM
Location(s) : Section 1883 (Room # 2),
Office Hours : Sunday 10:00 AM - 11:50 AM, Monday 10:00 AM- 10:50 AM, Wednesday 12:00 PM to 2:00 PM, (Staff Room #27)
Final Exam : As per schedule --- (Comprehensive)
Textbook(s) : 1. Kathy Schwalbe, Information Technology Project Management, Revised, International Edition, 7th Edition, Cengage Learning, 2013.

Course Requirements and Grading Policy:

1- Attendance and Participation in class discussion	10%
2- Quizzes (1)	5%
3- Assignment (1)	5%
4- Midterm Examination	20%
5- Project and Exercise with Presentation	20%
6- Final Examination: (as per schedule)	40% (COMPREHENSIVE)
	100%
Total	

Grades:

A+	:	95 to 100 %
A	:	90 to < 95%
B+	:	85 to < 90%
B	:	80 to < 85%
C+	:	75 to < 80%
C	:	70 to < 75%
D+	:	65 to < 70%
D	:	60 to < 65%
F	:	Below 60 %

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Tests: **45 %**

- Quiz 1, Quiz 2 : Week,11 5 %
- Midterm Exam : Week 8 20%
- Project and Exercise with Presentation : Week 1 - 11 20 %

Final Examination: **40 %**

Final Exam: As per schedule (COMPREHENSIVE)

Course Description:

This course addresses the main issues related to software project management such as project definition, scope management, planning, organization, resources, scheduling, control, quality, cost estimation, time estimation, and, risk management. Students are also introduced to project management tools such as Work Breakdown Structure, Gantt charts, PERT, and the critical path method. Topics covered also include project management ethics, and effective project manager skills such as people and leadership skills. Students should get exposed to a software package used for this purpose.

Course Learning Outcomes:

a) After successful completion of this course, student will be able to-

1. Understand the need for project management, project life cycle, key elements, project constraints, and skills needed for project manager.
2. Apply the processes, practices, tools and techniques of project management in delivering successful IT projects.
3. Evaluate a project to develop the scope of work, construct WBS, identify the resources required, provide accurate cost estimates, and can use CPM, PERT and GANTT charts to develop project schedule.
4. Understand and use risk management analysis techniques that identify the factors that put a project at risk and to quantify the likely effect of risk on project timescales.
5. Recognize project ethics and perform quality control.

b) ABET Criterion 3 Student Outcomes addressed by the course:

SO(3) Communicate effectively in a variety of professional contexts

SO(4) Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles

SO(5) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline

Course Outlines:

Course Topics	Book's Chapter	Event Name	Week Due
Introduction to Project Management, project life cycle, key elements, project constraints, and skills needed for project manager, project ethics	Chapter 1		Week 1,2
Project Management and Information Technology Context	Chapter2		Week 3
Project Management Processes	Chapter 3	**Quiz 1**	Week 4
Project Integration Management	Chapter 4		Week 5
Project Scope Management, WBS	Chapter 5	**Assignment**	Week 6,7
MID TERM EXAMINATIONS		**Mid Term**	Week 8
Project Time Management, Gantt Charts, PERT, CPM	Chapter 6		Week 9
Project Cost Management	Chapter 7		Week 10
Project Quality Management	Chapter 8		Week 11
Project Human Resource Management	Chapter 9	**Quiz 2**	Week 11
Project Risk Management, SWOT	Chapter 11		Week 11

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Software Packages	Free tools from Internet		Week 11
Review and Discussions			Week 11
FINAL EXAMINATIONS			

Attendance and Participation in Class Discussion 10 %

- Attendance is necessary but not sufficient which means that you must attend mentally as well as physically.
- Regular classroom attendance and regular participation in the class discussion and solving in class problems are essential.
- Successful learning requires good communication between students and instructors.
- This is a Project Management course, covered in 15 weeks, to be successful in this class, you should plan to arrive on time and participate in class discussion, ask questions, make use of the resources available in the library, and complete all homework.
- You should expect to spend several hours a week outside of class time for practice problems, homework, etc.
- Your contribution is to participate in the class activities within the frame work established in the class syllabus.
- You are responsible for your own attendance. If you miss a class, you are responsible for finding the notes and assignments from a classmate.
- If a student is absent for a class due to an acceptable excuse (like death in first family member, accident, hospitalization) or any other strong reason which makes it impossible to attend class, his excuse will be considered under the condition that the student submits the supportive documents within Maximum a Week after his absence.

Homework, Quizzes and Chapter Tests:

- The homework assignments are problems from each section in the textbook.
- Take time to include all the steps when working your homework problems.
- Doing so will organize your thinking and avoid computational errors.
- It will also give you complete step-by-step solutions of the exercises that can be used to study for exams.
- Writing down all the steps and keeping your work organized may also give you a better chance to receive partial credit
- Solution in the exam is the mirror image of your homework.
- NO ACCEPTENCE FOR UNORGANIZED & UNNEAT ASSIGNEMETS.
- Before each class, please complete the homework assigned in the previous class and it is important to study the previous class material to be able to follow and understand the present class.
- Be ready any time for a Quiz as a problem from the Homework.

General Notes:

- PLEASE TURN CELL PHONES OFF DURING CLASS!!! Cell phones, blackberries, iPods, etc. may not be accessed during class.
- The Final Exam will be comprehensive, covering all the material presented in the course
- NO MAKE UP EXAMS (except for what is stated under the “Regulations for Accepting Excuses for Not Attending Exams” section).
- Last day to drop:
- Last day to withdraw without grade penalty:

- Please note fire exit
- The syllabus is subject to change.
- For any questions, please email me through my MU Email.

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Regulations for Accepting Excuses for Not Attending Exams:

1. If Student is absent for Final Exam, Midterm Exam or Class Test due to a strong (like death in first family member, Accident, Hospitalization) or any other strong reason which makes impossible to attend Exam will be considered and student should submit the supportive documents to Vice Dean office within Maximum a Week after completion of the Examination.
2. If a Student is absent in Class Test the Instructor take decision to accept or reject the Excuse submitted by the Student.
3. For Midterm Exam, the decision will be taken by the Vice-Dean for Academic Affair.
4. For Final Exam College Council approval is required.

Learning Environment: MU is a place for learning and growing. You should feel safe and comfortable anywhere on campus. To meet this objective, you should:

1. let your Instructor, Vice-Dean or Dean know if any unsafe, unwelcome or uncomfortable situation arises that interferes with the learning process;
2. inform the instructor within the first two weeks of classes if you have special needs that may affect your performance in this course.

Academic Dishonesty: When College officials award credit, degrees, and certificates, they must assume the absolute integrity of the work you have done; therefore, it is important that you maintain the highest standard of honor in your scholastic work. The College does not tolerate academic dishonesty. Students who are not honest in their academic work will face disciplinary action along with any grade penalty the instructor imposes. Procedures for disciplinary measures and appeals are outlined in the Student Handbook. In extreme cases, academic dishonesty may result in dismissal from the College. Academic dishonesty, in general, involves one of the following acts:

1. Cheating on an examination or quiz, including the giving, receiving, or soliciting of information and the unauthorized use of notes or other materials during the examination or quiz.
2. Buying, selling, stealing, or soliciting any material purported to be the unreleased contents of a forthcoming examination, or the use of such material.
3. Substituting for another person during an examination or allowing another person to take your place.
4. Plagiarizing means taking credits for another person's work or ideas. This includes copying another person's work either word for word or in a substance without acknowledging the source.
5. Accepting help from or giving help to another person to complete an assignment, unless the instructor has approved such collaboration in advance.
6. Knowingly furnishing false information to the college; forgery and alteration or use of College documents or instruments of identification with the intent to defraud.

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	System Analysis & Design
Course Code:	**IS413**
Program:	Information Technology
Department:	**IT**
College:	**CCIS**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: 10
4. Pre-requisites for this course (if any)**: CS312**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		
2	**Blended**		
3	**E-learning**	44	100%
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course is concerned with the fundamental knowledge, methods and skills needed to analyses, design and implement computer-based systems. It addresses the role of the systems analyst, and the techniques and technologies used. The structured software development life cycle approach, modelling techniques (e.g., Entity-Relationship Models) and development phases are comprehensively discussed and reviewed. In modelling techniques, process models (e.g., Data Flow Diagrams), information models, system architecture models, and object-oriented models are thoroughly described.

2. Course Main Objective

To focus on the concepts, skills, methodologies, techniques, tools, and perspectives essential for systems analysts. The exposure to object oriented and use-case driven, will require students to go through the steps of system analysis and design to solve a real-life business problem.

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3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO1- To understand Information Systems their basic components, types and the key elements involved in the analysis, design & development of information Systems.	S4
1.2	CLO4 - Students understand the importance of analyzing and designing ethically and legally	K2
1.3		
1...		
2	**Skills :**	
2.1	SO(6)Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of	S6
2.2	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements	S2
2.3		
2...		
3	**Values:**	
3.1	CLO2-Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline	S5
3.2	CLO3-Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles	S4
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction Fundamental knowledge, methods and skills needed to analyze, design and implementation of information systems	3
2	Role of the systems analyst, and the techniques and technologies used The structured software development life cycle approach	3
3	Modelling techniques, process models - Data Flow Diagrams	6
4	Modelling techniques - Entity-Relationship Models	3
5	Making Forms and Reports	3
6	Business Strategies and solutions	3
7	Database design phase	8
8	Introduction to OO Modelling	6
9	Use case models	3
10	Data base modeling	3
11	Implementation	3
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	CLO1- To understand Information Systems their basic components, types and the key elements involved in the analysis, design & development of information Systems.	Classroom Teaching	Quiz, Mid Exam, Final Exam
2.2	CLO2 - An understanding of processes that support the delivery and management of information systems within a specific application environment.	Classroom Teaching	Quiz, Mini Project, Mid Exam, Final Exam
…			
3.0	**Values**		
3.1	CLO3 - A thorough understanding of the project handling, modelling techniques, business strategies and documentation involved in developing the information systems	Classroom Teaching	Project, Mid Exam, Final Exam
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments	2,4,6 & 8	20%
2	Mid	5	20%
3	Quiz	2 & 6	20%
4	Final	12	40%
5			
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- Faculty members are assigned some students in the corresponding department for academic advising.
- Students can meet the faculty during advising hours or Office hours or even making appointments via email.

- Faculty create **telegram** channel which use for discussion and inquiry 24/7

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	System Analysis & Design by Kendall & Kendall Essentials of System Analysis & design by Valacich, George, Hoffer
Essential References Materials	Professionals guide to System Analysis (McGraw Hill Software Engineering Series)
Electronic Materials	SDL , ACM Library , and PowerPoint Presentation
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Blackboard/ Telegram/ Email
Technology Resources (AV, data show, Smart Board, software, etc.)	AV, data show, Smart Board,
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students/ HoD	Indirect/ Direct /
Extent of achievement of course learning outcomes	Students/ HoD	Indirect/ Direct /
Quality of learning resources	HoD	Direct

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**Computer Fundamentals**
Course Code:	**IT 112**
Program:	**Computer Science/ Information Technology**
Department:	**Information Technology**
College:	**College of Computer and Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours: 3(4,1,0)
2. Course type **a.** University ☐ College ☒ Department ☐ Others ☐ **b.** Required ☒ Elective ☐
3. Level/year at which this course is offered: Level 1
4. Pre-requisites for this course (if any)**: NA**
5. Co-requisites for this course (if any)**: NA**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	55	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	**44**
2	**Laboratory/Studio**	**11**
3	**Tutorial**	
4	**Others** (specify)	
	Total	**55**

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces the overview of the fundamentals of computers. Course coverage will include both theoretical and practical understanding of computer fundamentals. The course will teach all kinds of computing devices (like PCs and Macs, tablets, and phones) as well as how to configure and troubleshoot issues related to network or internet. It will teach, how to work with applications and files. Students will also learn about security, safety, and preventative maintenance, along with basics of databases and programming skills.

2. Course Main Objective

1. Identify and understand the basic computer components.
2. Understand various operating systems, virtualization, data storage, and sharing.
3. Understand setup, software installation and configuration and troubleshooting devices.
4. Learn how to work with applications and files.
5. Learn to connect to networks and the Internet.
6. Identify security issues affecting the use of computers and networks.

7. Understand some principles of software and database development.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO1: Identify and understand the basic computer components.	K1
1.2	CLO5: Understand some principles of software and database development.	K1
1.3		
1.4		
2	**Skills :**	
2.1	CLO2: Understand setup, software installation and configuration, security, and basic troubleshooting.	S2
2.2	CLO3: Learn to connect to networks and the Internet	S2
2.3	CLO4: Identify security issues affecting the use of computers and networks.	S2
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Common computing devices, using a workstation	4
2	Use and manage an OS, system troubleshooting	6
3	System components, using device interfaces, peripheral devices	6
4	Storage devices, file systems	4
5	Connecting to a network, secure web browsing	6
6	Shared storage and mobile devices	4
7	Application and databases: Data types, using applications	8
8	Application development and databases	7
9	Systems Security, securing devices,	4
10	Access control systems	3
11	Security policies and procedures	3
Total		55

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO1: Identify and understand the basic computer components.	Classroom Teaching	Midterm Exam, Quizzes, Final Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	CLO5: Understand some principles of software and database development.	Classroom Teaching and Laboratory practice	Midterm Exam, Quizzes, Final Exam
…			
2.0	**Skills**		
2.1	CLO2: Understand setup, software installation and configuration, security, and basic troubleshooting.	Classroom Teaching and Laboratory practice	Lab Exercise
2.2	CLO3: Learn to connect to networks and the Internet	Classroom Teaching and Laboratory practice	Lab Exercise
2.3	CLO4: Identify security issues affecting the use of computers and networks.	Classroom Teaching and Laboratory practice	Midterm Exam, Quizzes, Final Exam, Assignments
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	Week 3	10%
2	Assignment 1	Week 3	10%
3	Midterm	Week 6	20%
4	Assignment 2	Week 7	10%
5	Quiz 2	Week 9	10%
6	Final Exam	Week 12	40%
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Students can meet the faculty during advising hours or whenever the faculty is in the office.

Office Hours: 4 Hours/Week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	CompTIA IT Fundamentals+ FC0-U61 Cert Guide (Certification Guide) 1st Edition. ISBN-13: 978-0789760418

Essential References Materials	
Electronic Materials	Saudi Digital Library
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Laboratory- Capacity for 20 students to be seated.
Technology Resources (AV, data show, Smart Board, software, etc.)	PC - Smart board - Computers in the Lab room
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**Visual Programming**
Course Code:	**IT223**
Program:	Computer Science/ Information Technology
Department:	Information Technology
College:	College of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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D. Teaching and Assessment **5**

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E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours:	3 (3,0,1)
2. Course type	
a.	University ☐ College ☒ Department ☐ Others ☐
b.	Required ☒ Elective ☐
3. Level/year at which this course is offered:	**Level 5**
4. Pre-requisites for this course (if any)**:**	CS120- Programming II
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	22
2	**Laboratory/Studio**	22
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course gives students the basis for developing visual applications. Using a selected visual programming language, Introduces computer programming using the Visual BASIC programming language with object-oriented programming principles, Emphasis is on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger, OO design and programming techniques, exception handling, modular programming, Visual BASIC Controls and Events, GUI design rules, event handling, multithreading, swing components and model, networking (Client Server Model), and access to databases

2. Course Main Objective

1. Use the different elements of a visual programming language as building blocks to develop correct, coherent programs.
2. Analyze problems, develop conceptual designs that solve those problems, and transform those designs to Visual Programs with VB.Net.
3. Program using the fundamental software development process, including design, coding, documentation, testing, and debugging.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO1: Use the different elements of a visual programming language as building blocks to develop correct, coherent programs.	K1
1.2		
1.3		
1...		
2	**Skills :**	
2.1	CLO2: Analyze problems, develop conceptual designs that solve those problems, and transform those designs to Visual Programs with VB.Net.	S4 [IT]
2.2	CLO3: Program using the fundamental software development process, including design, coding, documentation, testing, and debugging.	S2
2.3		
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Program design and implementation - Develop visual applications (VB)	3
2	Essential VB, variables, data types, commenting	2
3	Arithmetic operators and expressions	3
4	Decision Structures (ifs and select case)	6
5	Loops (while, for) & Eexception handling	5
6	Loop applications (summation, counting)	2
7	Functions (val and ref parmaters) & Swing components and model,	6
8	Strings & Arrays	6
9	Windows applications using forms, controls, and events.	5
10	Files, Multithreading, Networking & Databases	4
Total		44

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D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO1: Use the different elements of a visual programming language as building blocks to develop correct, coherent programs.	Classroom Teaching	Mid Exam, Final Exam
1.2			
…			
2.0	**Skills**		
2.1	CLO2: Analyze problems, develop conceptual designs that solve those problems, and transform those designs to Visual Programs with VB.Net.	Classroom Teaching and Lab Exercises	Lab Based Assignments, Mid Exam, Final Exam
2.2	CLO3: Program using the fundamental software development process, including design, coding, documentation, testing, and debugging.	Classroom Teaching and Lab Exercises	Lab Based Assignments
…			
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	Week 2	5%
2	Assignment 1	Week 3	5%
3	Lab Exercise	Week 5	5%
4	Lab Exercise	Week 6	5%
5	Midterm Exam	Week 7	20%
6	Assignment 2	Week 7	5%
7	Quiz 2	Week 8	5%
8	Lab Exercise	Week 9	5%
9	Assignment 3	Week 10	5%
10	Final Exam	Week 12	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Students can meet the faculty during advising hours or whenever the faculty is in the office.

Office Hours: 4 Hours/Week

Students also can email the faculty anytime during the weekdays

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Zak, Diane, Programming with Microsoft Visual Basic 2015. Seventh Edition, Course Technology, Cengage Learning, 2016. ISBN:978-1-285-86026-8.
Essential References Materials	
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom and laboratory
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show and Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Visual Basic .NET

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

Date	

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هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Selected Topics in Emerging Technologies
Course Code:	IT 232
Program:	IT
Department:	IT
College:	College of Computer and Information Sciences
Institution:	Majmaah University

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C. Course Content **4**

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E. Student Academic Counseling and Support **6**

F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 7

G. Course Quality Evaluation **7**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours: 2(0,4,0)
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: **Level 6**
4. Pre-requisites for this course (if any)**:** **……..**
5. Co-requisites for this course (if any)**:NIL**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	**44**	**100%**
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	
2	**Laboratory/Studio**	**44**
3	**Tutorial**	
4	**Others** (specify)	
	Total	**44**

B. Course Objectives and Learning Outcomes

1. Course Description Technological advancements today enable faster changes and progress, accelerating the pace of change. In the contactless world tomorrow, IT professionals' roles will change significantly not only because of technology trends and emerging technologies, which has caused a great deal of change in the IT sector. The IT professional will be constantly learning, unlearning, and relearning .Topics include Machine Learning and Artificial Intelligence, IoT & Edge Computing, Virtual Reality , Augmented Reality and Block chain.
2. Course Main Objective Understand and Analyze technological advancements in Machine Learning and Artificial Intelligence, IoT &Edge Computing, Virtual Reality and Augmented Reality and Block chain.

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3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO 1- Discover how technology is evolving and will continue to evolve.	K1
1.2	CLO 5. Understand the operational processes of IoT ,Edge Computing, Virtual Reality ,Augmented Reality and Block chain	K1
2	**Skills :**	
2.1	CLO 2 Identify and analyze user needs and implement ML and AI concept for effective cyber defenses and security.	S4
2.2	CLO 3. Know and apply the methodology of security using Block chain targeted attacks.	S5
3	**Values:**	
3.1	CLO4. Analyze and find the effect of IoT, Edge Computing, Blockchain and Virtual Reality in present era.	V2
3.2		
3.3		

C. Course Content

No.	Topics	Weeks	Teaching hours
1	**Machine Learning &Artificial Intelligence** Machine learning Data Analytics Pattern recognition Neural Network and Deep learning	3	10
2	**IoT and Edge Computing** IoT history and potential IoT and Smart City IoT architecture Edge Computing	3	10
3	**Virtual Reality and Augmented Reality** Virtual Reality	2	8

	Augmented Reality Cross platform theory VR toolkit Applications		
4	**Blockchain** Terminology and Technical Foundations Why the Blockchain Is Needed How the Blockchain Works Planning the blockchain Cyber security using Blockchain Limitations	2	8
	Total	**11**	**44**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO 1- Discover how technology is evolving and will continue to evolve.	Classroom Teaching	Test, Mid Exam, Final Exam
1.2	CLO 5. Understand the operational processes of IoT ,Edge Computing, Virtual Reality ,Augmented Reality and Block chain	Classroom Teaching	Test, Mid Exam, Final Exam
1.3			
2.0	**Skills**		
2.1	CLO 2 Identify and analyze user needs and implement ML and AI concept for effective cyber defenses and security.	Classroom & Exercise Teaching	Mini Project, Lab Based Assignments, Lab Test
2.2	CLO 3. Know and apply the methodology of security using Block chain targeted attacks	Classroom & Exercise Teaching	Mini Project, Lab Based Assignments, Lab Test
…			
3.0	**Values**		
3.1	CLO4. Analyze and find the effect of IoT, Edge Computing, Blockchain and Virtual Reality in present era.	Classroom Teaching, Project	Class Test, Mid Exam, Final Exam
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Tes/Quiz t(1,2)		10%
2	Mid Term Exam		20%
3	Lab Exam		10%
4	Lab Based Assignments/ Mini Project Presentation		20%
5	Final Exam		40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**Machine Learning: The New AI (MIT Press Essential Knowledge series)** • ISBN-10 : 0262529513 • ISBN-13 : 978-0262529518 **IoT and Edge Computing for Architects: Implementing edge and IoT systems from sensors to clouds with communication systems, analytics, and security, 2nd Edition** • ISBN-10 : 1839214805 • ISBN-13 : 978-1839214806 **Creating Augmented and Virtual Realities: Theory and Practice for Next-Generation Spatial Computing 1st Edición** • ISBN-10 : 1492044199 • ISBN-13 : 978-1492044192 **The Blockchain and the New Architecture of Trust** Kevin Werbach • **ISBN:9780262038935** • **Published: November 20, 2018**
Essential References Materials	
Electronic Materials	
Other Learning Materials	

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2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Course instructor	Direct
Course Survey in the middle of the semester and at the end of the semester (Effectiveness of teaching and assessment)	Students	Indirect
Extent of achievement of course learning outcomes	Students	Indirect
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

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هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Multimedia & Web Design
Course Code:	**IT 313**
Program:	**Information Technology**
Department:	**Information Technology & Computer Science**
College:	**College of Computer and Information Science**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours: 3(2, 2, 0)
2. Course type **a.** University ☐ College ☐ Department ☒ Others ☐ **b.** Required ☒ Elective ☐
3. Level/year at which this course is offered: L7
4. Pre-requisites for this course (if any)**: IS 213 - Fundamentals of Database**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	22
2	**Laboratory/Studio**	22
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

The course deals with different web technologies concepts. The topics covered in the course are listed in Course Content Section.

2. Course Main Objective

This course explores advanced and modern concepts and technologies used in the development of electronic business applications. It introduces multimedia and web computer graphics. Focuses on development of web-enabled multimedia applications from practical business perspective. Introduces and discusses technological, aesthetic, and human factors. This course includes the following topics: Introduction to internet, www, web2.0,Introduction to XHTML, CSS, JavaScript: Overview of Java Script Language, Java Script Data types, Variables, Control Structures, functions, arrays, objects, DOM, events, XML and RSS, AJAX, Adobe Flash, Adobe Dreamweaver, Rich Internet application Technologies: Web Servers (IIS and Apache), Database: SQL, MYSQL, PHP-basics, String Processing, and regular

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expressions, Form Processing and business logic, connecting to database, using cookies, dynamic content, An Overview of Java, Data Types, Variables, and Arrays, Operators, Control Statements, Introducing Classes, a Closer Look at Methods and Classes, Inheritance, Packages and Interfaces, Exception Handling, Multithreaded Programming, I/O, and Applets.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO1: Identify attributes of web design	S1
1.2	CLO2: Know principles of multimedia design that are used to communicate information	S1
2	**Skills :**	
2.1	CLO3: Learn how to create web pages	S2
3	**Values:**	
3.1	CLO4: Know technological, aesthetic, and human factors	S4

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to the internet, world wide web, web 2.0	4
2	Introduction to XHTML: Heading, linking, images, lists	4
3	Tables, Forms, Internal Linking meta elements.	4
4	CSS: Different embedding styles, positioning elements, backgrounds, element dimensions	4
5	JavaScript: Introduction to Scripting	4
6	JavaScript: Java Script Data types, Variables, Control Structures, and Functions	4
7	JavaScript: arrays, objects, Data Object Model, event handling.	4
8	Server Side: Web Servers (IIS and Apache), Database: SQL, MYSQL, introduction to PHP.	4
9	PHP-basics, String Processing, and regular expressions, Form Processing, and business logic, PHP and MySQl connectivity.	4
10	Web 2.0 technologies: Ajax, DOM, XML, JSON	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO1: Identify attributes of web design	Classroom Teaching	Midterm Exam, Final Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	CLO2: Know principles of multimedia design that are used to communicate information	Classroom Teaching	Midterm Exam, Final Exam, Laboratory Exam
2.0	**Skills**		
2.1	CLO3: Learn how to create web pages	Classroom Teaching, Lab Delivery	Midterm Exam, Final Exam, Laboratory Exam, Mini Project
3.0	**Values**		
3.1	CLO4: Know technological, aesthetic, and human factors	Classroom Teaching, Lab Delivery	Midterm Exam, Final Exam, Mini Project

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Lab Exam 1	Week 5	10%
2	Midterm Exam	Week 6-7	20%
3	Lab Exam 2	Week 10	10%
4	Mini Project	Week 2 and 10	15%
5	Final Exam	Week 13	40%
6	Class Performance		5%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:
Office Hours: 4 hours/Week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Internet & World Wide Web: How to Program: International Version", By Deitel & Deitel, 5th edition, Pearson Higher Education, 2011.
Essential References Materials	The complete reference, Herbert Schildt, McGraw Hill Education, 9th edition, 2014
Electronic Materials	Web References and downloads: http://lms.mu.edu.sa w3schools.com College Computer Laboratory for Practical Implementation
Other Learning Materials	Atom Dreamweaver Notepad++ Adobe Animate

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Laboratory- Capacity for 20 students to be seated
Technology Resources (AV, data show, Smart Board, software, etc.)	Atom PC - Smart board - Computers in the Lab room, Dreamweaver Notepad++ Adobe Animate
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Script	Peer faculty members	Review
Course Feedback	Students	Survey

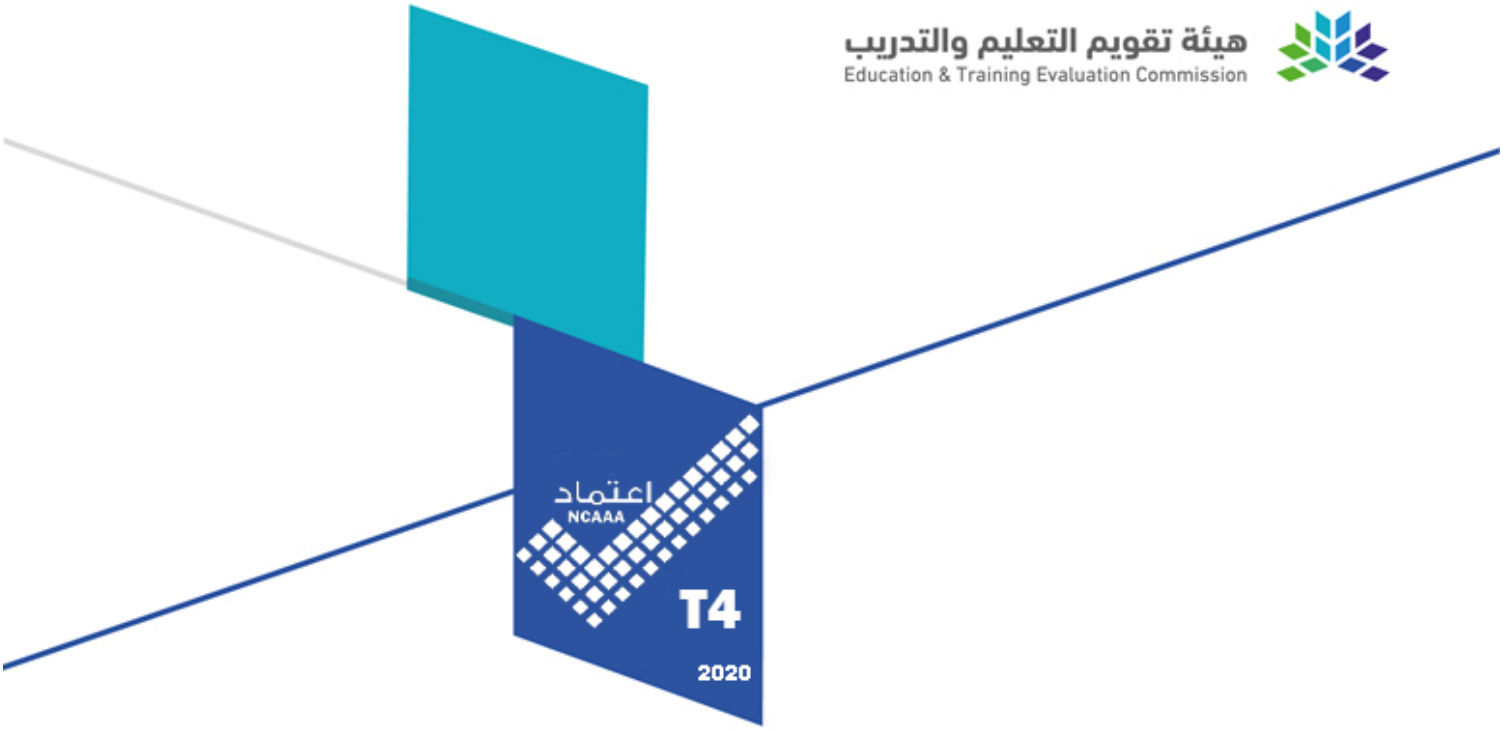
Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Data Transmission and Computer Networks
Course Code:	IT 321
Program:	Information Technology & Computer Science
Department:	Information Technology
College:	College of Computer and Information Sciences
Institution:	Majmaah University

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H. Specification Approval Data 7

A. Course Identification

1. Credit hours:	**3 (3,0,1)**
2. Course type	
a.	University ☐ College ☒ Department ☐ Others ☐
b.	Required ☒ Elective ☐
3. Level/year at which this course is offered:	Level 8
4. Pre-requisites for this course (if any)**: CS240-Operating System**	
5. Co-requisites for this course (if any)**: NIL**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

In this course students will develop a deeper understanding of modern compiler techniques applied to general purpose programming languages. It will give students a working knowledge of the foundations, tools, and engineering approaches used in developing formal language translators.

2. Course Main Objective

This course aims to provide a theoretical as well as experimental background of Computer Network with a focus on the following:

Introduction to computer networks, Network architecture, OSI reference model, Transmission media, Transmission Impairments, Data encoding; Data Link: Error Detection, Medium Access control Protocols and standards, MAC Addressing, Link layer Switches, LAN standards & Devices: Ethernet and IEEE standards for LANs,

Wireless networks; Network Layer: Virtual circuit and Datagram Networks, Router Structure, The Internet Protocol (IP), Routing Algorithms, Broadcasting and Multicasting; Transport Layer: TCP and UDP services, designs, and performance, Principles of Reliable Data Transfer; Application layer: The Web and HTTP, FTP, Electronic Mail, and DNS.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	CLO1: Understand and analyze the structure of an abstract layered protocol model (OSI, TCP/IP) and Transmission Media	S1,
2.2	CLO2: Understand and implement data link (DL) layer protocols	S1
2.3	CLO4: Understand and implement the principles of Delivery, Forwarding, and Routing	S3
2...		
3	**Values:**	
3.1	CLO3: Understand the principles of Network Layer Services	V1
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to computer networks, Network architecture, OSI reference model	3
2	Transmission media, Transmission Impairments	3
3	Data encoding; Data Link: Error Detection	3
4	Medium Access control Protocols and standards ,MAC Addressing	3
5	Link layer Switches, LAN standards & Devices, Ethernet and IEEE standards for LANs	3
6	Network Layer: Virtual circuit and Datagram Networks	3
7	Router Structure, The Internet Protocol (IP), Routing Algorithms Broadcasting and Multicasting	3
8	Transport Layer: TCP and UDP services	3
9	Designs, and performance of TCP, Principles of Reliable Data Transfer	3
10	Application layer Protocol: The Web and HTTP	3
11	FTP, Electronic Mail, and DNS Protocol	3
Total		33

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Students will learn, understand and explain the main techniques and algorithms used in compilers.	Lectures, Discussions	Exams, Assignments, Participation
1.2			
…			
2.0	**Skills**		
2.1	CLO1: Understand and analyze the structure of an abstract layered protocol model (OSI, TCP/IP) and Transmission Media	Classroom Teaching	Class Test, Mid Exam, Final Exam
2.2	CLO2: Understand and implement data link (DL) layer protocols	Classroom Teaching	Class Test, Mid Exam, Final Exam
2.3	CLO4: Understand and implement the principles of Delivery, Forwarding, and Routing	Oral /Written Communication, Seminar	Group Assignments, Mini Project
2.4	CLO5: Understand principles of Transport Layer Services & design principles of Transport Protocols (UDP & TCP) and application layer services	Classroom Teaching Mini Project, Lab Exercises	Class Test, Mid Exam, Final Exam Lab based Assignments, Mini Project
3.0	**Values**		
3.1	CLO3: Understand the principles of Network Layer Services	Mini Project, Graduation Project, Lab Exercises	Oral or Written Communication, Seminar
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	**Midterm Examination:**	**Week 6**	**20%**
2	**Final Examination**	**Week 11**	**40%**
3	**Quiz**	**All Weeks**	**15%**
4	**Exercises / Assignments / Homework:**	**All Weeks**	**15%**
5	**Lab based Assignments**	**All Weeks**	**5%**
7	**Attendance / Participation**	**All Weeks**	**5%**
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice : Every faculty will be assigned 10 students in the corresponding department for academic advising. Students can meet the faculty during advising hours or whenever the faculty is in the office.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**Data Communications, Networking, 5th Edition, Behrouz, Forouzan, McGraw-Hill 2012**
Essential References Materials	Tanenbaum, Computer Networks, 5th Edition, Prentice Hall, 2010. James F. Kurose, and Keith W Ross, Computer Networking: A Top-Down Approach, Addison-Wesley, 2012. Larry Patterson and Bruce Davis, Computer Networks: A systems Approach, Morgan Kaufmann, 2011.
Electronic Materials	• http://www.sdl.edu.sa • http://lms.mu.edu.sa
Other Learning Materials	CISCO Packet tracer

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Class Room. Lab.
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

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Evaluation Areas/Issues	Evaluators	Evaluation Methods

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Computer Science Department
Reference No.	
Date	

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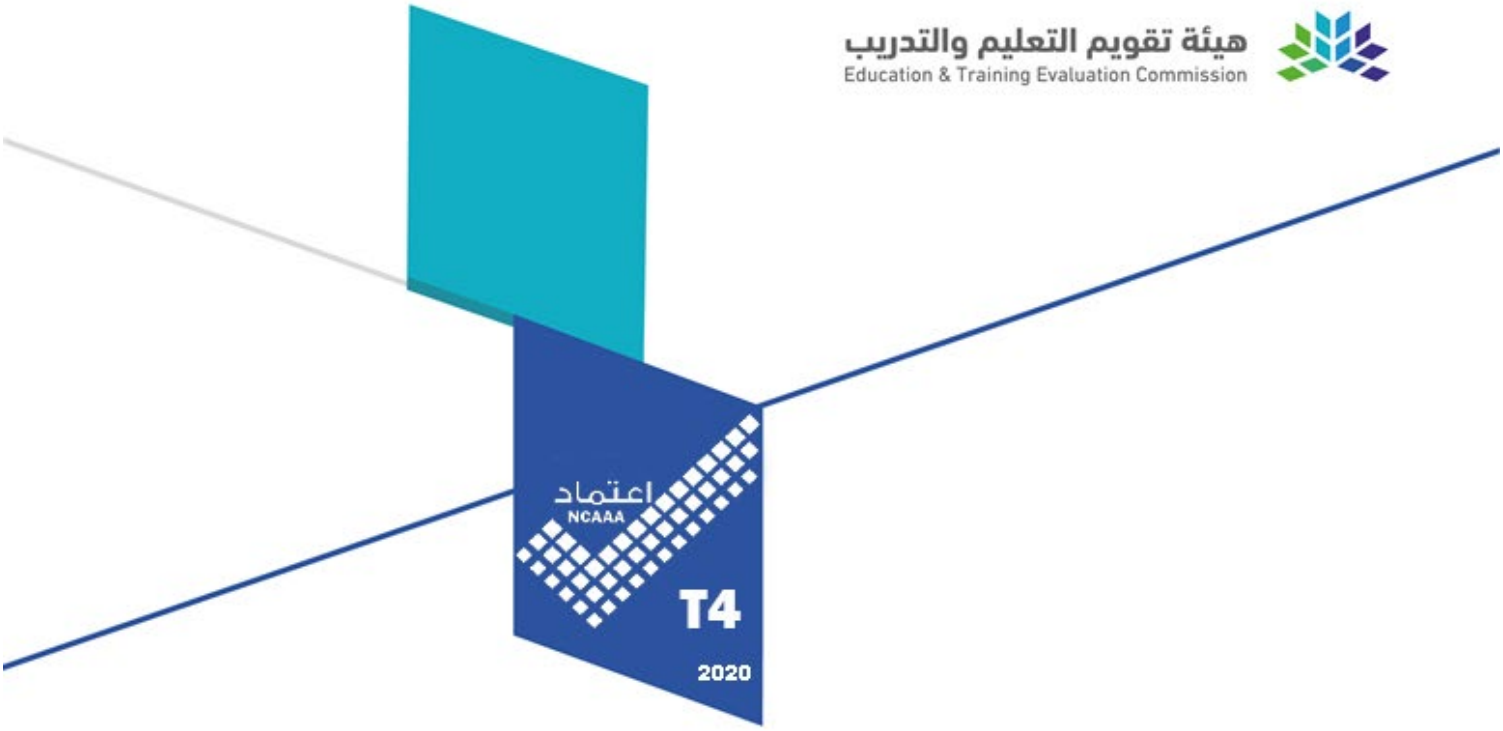

Course Specifications

Course Title:	**Database Lab**
Course Code:	**IT 323**
Program:	**Information Technology**
Department:	**Information Technology**
College:	**College of Computer and Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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A. Course Identification

1. Credit hours:	**2(0,4,0)**
2. Course type	
a.	University ☐ College ☐ Department ☐ Others ☒
b.	Required ☒ Elective ☐
3. Level/year at which this course is offered:	**8th**
4. Pre-requisites for this course (if any):	**IS 213- Fundamental of Database**
5. Co-requisites for this course (if any)**:**	**NA**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	
2	**Laboratory/Studio**	44
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

The course deals with the advanced topics of database (i.e. oracle). This course covers the following topics: Selection of DBMS, Architecture of the chosen DBMS, DB creation, Indexing, Integrity Constraints triggers and assertions, Security management, Installation issues, Performance Management, Tuning, DB Backups, and Recovery issues. Other features of the DBMS: Integration with web technologies, DB connectivity tools, Data distribution, fragmentation, and replication issues, Management issues of the DBA activity

2. Course Main Objective

1. Identify the proper selection of a DBMS.
2. Understand the architecture of the chosen DBMS, DB creation, Indexing, Integrity Constraints triggers, and assertions.
3. Understand security management, Installation issues, performance management, Tuning, DB Backups, and Recovery issues.

4. Learn the features of the DBMS: Integration with web technologies, DB connectivity tools.
5. Identify data distribution, fragmentation, and replication issues, management issues of the DBA activity.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO1: Knowledge of Oracle Database components and Architecture, Oracle instance and their sub components	S1
1.2	CLO2: Knowledge of User Management and Security Issues	S1
1.3		
1...		
2	**Skills :**	
2.1	CLO3: Implement Backup/Recovery options	S2
2.2	CLO4: Manage Web technologies	S4
2.3	CLO5: Manage Database Storage structures, Oracle Net Services and Server connectivity options	S4
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction	4
2	Selection of DBMS, Architecture of the chosen DBMS, DB creation, Indexing	4
3	Integrity Constraints triggers and assertions.	4
4	Security management, Installation issues	4
5	Performance Management	4
6	Tuning	4
7	Other features of the DBMS: Integration with web technologies	4
8	DB Backups, and Recovery issues	4
9	DB connectivity tools, Data distribution	4
10	Fragmentation, and replication issues	4
11	Management issues of the DBA activity	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO1: Knowledge of Oracle Database components and Architecture, Oracle instance and their sub components	Lab Delivery	Quiz1, Assignment1, Midterm Exam, Final Exam
1.2	CLO2: Knowledge of User Management and Security Issues	Lab Delivery	Quiz2, Assignment2, Final Exam
…			
2.0	**Skills**		
2.1	CLO3: Implement Backup/Recovery options	Lab Delivery	Quiz2, Assignment2, Mini Project, Final Exam
2.2	CLO4: Manage Web technologies	Lab Delivery	Quiz2, Assignment2, Final Exam
2.3	CLO5: Manage Database Storage structures, Oracle Net Services and Server connectivity options	Lab Delivery	Mini Project
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week 3,8	20%
2	Assignments	Week 4,7	10%
3	Midterm Exam	Week 6	20%
4	Mini Project	Week 2	10%
5	Final Exam	Week 12	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Students can meet the faculty during advising hours or whenever the faculty is in the office.
Office Hours: 4 Hours/Week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	"OCA: Oracle Database11g Administration I", By John Watson, McGraw Hill, 2008 2008
Essential References Materials	OCP: Oracle Database11g Administration II", By **Bob Bryla**, McGraw Hill, 2008. Oracle® Database Backup and Recovery User's Guide 11*g*.
Electronic Materials	• Web References and downloads: http://lms.mu.edu.sa • https://apex.oracle.com/en/ • Oracle.com • College Computer Laboratory for Practical Implementation
Other Learning Materials	Oracle 11g

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Laboratory- Capacity for 20 students to be seated.
Technology Resources (AV, data show, Smart Board, software, etc.)	PC - Smart board - Computers in the Lab room, Oracle 11g
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

College of Computer and Information Sciences
كلية علوم الحاسب والمعلومات

جامعة المجمعة
Majmaah University

COURSE SYLLABUS

DEPARTMENT OF COMPUTER SCIENCE

SPRING 2022

Course Code	Course Title
IT332	Ethics & Professional Practice

Course Credit : 2 (2,0,0)
Pre-requisite :
Instructor : Dr. Badr Almutairi
Computer Science Department
College of Computer and Information Sciences
Majmaah University
Email: b.algoian@mu.edu.sa
Course Time(s) : Tue 10:00 AM- 11:50 AM
Location(s) : Room 6
Office Hours : Tue 11:45 AM- 12:10 PM,

Final Exam : As per schedule --- (Comprehensive)
Textbook(s) : Joseph M. Kizza: "Ethical and social issues in Information Age" 5th Edition Springer 2013.

Course Requirements and Grading Policy:

1-	Attendance and Participation in class discussion	10%
2-	Assignments	20%
3-	Midterm Examination: Week # 8	20%
4-	In Class Test: Week # 11	10%
5-	Final Examination: (as per schedule)	40% (COMPREHENSIVE)
	Total	**100%**

Grades:

A+	:	95 to 100 %
A	:	90 to < 95%
B+	:	85 to < 90%
B	:	80 to < 85%
C+	:	75 to < 80%
C	:	70 to < 75%
D+	:	65 to < 70%
D	:	60 to < 65%

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F : Below 60 %

Tests: 30 %

- Midterm Exam	:	Week 8	20%
- In-class test / Exercise / Lab	:	Week 11	10%

Final Examination: 40 %

Final Exam: As per schedule (COMPREHENSIVE)

Course Description:

This course will develop the ethical foundations of good professional practice in information technology. It will provide the necessary background of ethical theories and practices, and discuss the role of professional organizations in maintaining such practice, specifically in the information technology industry. Also, It considers legislation that applies in the information technology industry, including major areas of ethical related in information technology, such as, software ownership, data privacy, and computer cracking

Course Learning Outcomes:

1. Understand ethical theories: authoritarian, intuitionist, egoist, utilitarian, and deontologist.
2. Understand origin and purpose of professions, internal regulation versus external regulation, dimensions of professional responsibility, professional organizations: ethics and codes of conduct.
3. Recognize computer hacking, computer cracking, and difficulties with traditional legal concepts.
4. Understand the meaning of privacy, computer data and human dignity, the problematic status of information stored on computers.
5. Understand the Theories of property and ownership: Patent, Copyright, and trade secrets, and Ownership of computer software

Course Outlines:

Week	Course Topics	Book's Chapter	Event Name	Week Due
1	Morality and the Law	Chapter 2 Textbook		
2	Ethics and Ethical Analysis	Chapter 3 Textbook		
3	Ethics and Professions	Chapter 4		

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		Textbook		
4	Ethics and Professions	Chapter 4 Textbook		
5	Anonymity	Chapter 5 Textbook	Assignment	
6	Security and Privacy	Chapter 5 Textbook		
7	Intellectual Property Rights and Computer Technology	Chapter 6 Textbook		
8	**Midterm Exam**			
9	Computer Crimes	Chapter 9 Textbook		
10	Ethics in Cyperspace	Chapter 12 Textbook		
11	Ethics in Cyperspace	Chapter 12 Textbook		
12	Ethical, Privacy, and Security Issues in the Online Social Network Ecosystems	Chapter 13 Textbook	Quiz/test Assignment	
13	Mobile Systems and Their Intractable Social, Ethical and Security Issues	Chapter 14 Textbook		
14	Review Week			
15	Review Week			
16	**FINAL EXAMS**			

Attendance and Participation in Class Discussion:

- Attendance is necessary but not sufficient which means that you must attend mentally as well as physically.
- Regular classroom attendance and regular participation in the class discussion and solving in class problems are essential.
- Successful learning requires good communication between students and instructors.
- This is a Course Name course, covered in 15 weeks, to be successful in this class, you should plan to arrive on time and participate in class discussion, ask questions, make use of the resources available in the library, and complete all homework.
- You should expect to spend several hours a week outside of class time for practice problems, homework, etc.
- Your contribution is to participate in the class activities within the frame work established in the class syllabus.
- You are responsible for your own attendance. If you miss a class, you are responsible for finding the notes and assignments from a classmate.
- If a student is absent for a class due to an acceptable excuse (like death in first family member, accident, hospitalization) or any other strong reason which makes it impossible to attend class, his excuse will be considered under the condition that the

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student submits the supportive documents within Maximum a Week after his absence.

Homework, Quizzes and Chapter Tests:

- The homework assignments are problems from each section in the text book.
- Take time to include all the steps when working your homework problems.
- Doing so will organize your thinking and avoid computational errors.
- It will also give you complete step-by-step solutions of the exercises that can be used to study for exams.
- Writing down all the steps and keeping your work organized may also give you a better chance to receive partial credit
- Solution in the exam is the mirror image of your homework.
- NO ACCEPTENCE FOR UNORGANIZED & UNNEAT ASSIGNEMETS.
- Before each class, please complete the homework assigned in the previous class and it is important to study the previous class material to be able to follow and understand the present class.
- Be ready any time for a Quiz as a problem from the Homework.

General Notes:

- PLEASE TURN CELL PHONES OFF DURING CLASS!!! Cell phones, blackberries, iPods, etc. may not be accessed during class.
- The Final Exam will be comprehensive, covering all the material presented in the course
- NO MAKE UP EXAMS (except for what is stated under the "Regulations for Accepting Excuses for Not Attending Exams" section).
- Last day to drop: **()**
- Last day to withdraw without grade penalty: **()**
- Please note fire exits.
- The syllabus is subject to change.
- For any questions, please email me through my MU Email.

Regulations for Accepting Excuses for Not Attending Exams:

1. If Student is absent for Final Exam, Midterm Exam or Class Test due to a strong (like death in first family member, Accident, Hospitalization) or any other strong reason which makes impossible to attend Exam will be considered and student should submit the supportive documents to Vice Dean office within Maximum a Week after completion of the Examination.
2. If a Student is absent in Class Test the Instructor take decision to accept or reject the Excuse submitted by the Student.
3. For Midterm Exam, the decision will be taken by the Vice-Dean for Academic Affair.
4. For Final Exam College Council approval is required.

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Learning Environment: MU is a place for learning and growing. You should feel safe and comfortable anywhere on campus. To meet this objective, you should:

1. let your Instructor, Vice-Dean or Dean know if any unsafe, unwelcome or uncomfortable situation arises that interferes with the learning process;
2. inform the instructor within the first two weeks of classes if you have special needs that may affect your performance in this course.

Academic Dishonesty: When College officials award credit, degrees, and certificates, they must assume the absolute integrity of the work you have done; therefore, it is important that you maintain the highest standard of honor in your scholastic work. The College does not tolerate academic dishonesty. Students who are not honest in their academic work will face disciplinary action along with any grade penalty the instructor imposes. Procedures for disciplinary measures and appeals are outlined in the Student Handbook. In extreme cases, academic dishonesty may result in dismissal from the College. Academic dishonesty, in general, involves one of the following acts:

1. Cheating on an examination or quiz, including the giving, receiving, or soliciting of information and the unauthorized use of notes or other materials during the examination or quiz.
2. Buying, selling, stealing, or soliciting any material purported to be the unreleased contents of a forthcoming examination, or the use of such material.
3. Substituting for another person during an examination or allowing another person to take your place.
4. Plagiarizing means taking credits for another person's work or ideas. This includes copying another person's work either word for word or in a substance without acknowledging the source.
5. Accepting help from or giving help to another person to complete an assignment, unless the instructor has approved such collaboration in advance.
6. Knowingly furnishing false information to the college; forgery and alteration or use of College documents or instruments of identification with the intent to defraud.

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هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Human Computer Interaction
Course Code:	IT334
Program:	Information Technology
Department:	Information Technology
College:	College of Computer and Information Sciences
Institution:	Majmaah University

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F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours:	**3(3,0,1)**
2. Course type	
a.	University ☐ College ☐ Department ☒ Others ☐
b.	Required ☐ Elective ☐
3. Level/year at which this course is offered:	**Level 9**
4. Pre-requisites for this course (if any)**:**	CS 210/ IT210
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		
2	**Blended**	44	100%
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course helps to build competence, knowledge, and skills in the field of Human-Computer Interaction Design. The course covers the following topics: Introduction to Human-Computer Interaction (HCI) and Human Cognitive Systems; Understanding Users; Interaction Frameworks, Paradigm and Styles; Evaluation of User Interfaces using Heuristic Evaluation and Usability Testing. The course covers also the underlying Design Principles and Designing Interaction including: Interaction Design Process, User-Centered Design and Prototyping, Conceptual and Physical Design, Interface Design Standards, Task Analysis and Discovery, Design Principles. Different Features of Interaction and User Interfaces will also be presented: Color, Interface Components (e.g. Windows, Icons, Menus, and Pointers etc.), Icons, Text, Speech, Touch, Augmented Reality, and Haptic. Students participate in-group projects on the design, development and evaluation of user interfaces.

2. Course Main Objective

1. Understand the basic theories behind designing Human-computer interaction systems.

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2. Understand psychological principles underlying effective user interfaces.
3. Understand the technical, cognitive, and social factors that can make interactive systems usable.
4. Design and create effective user interface using available theories, principles and guidelines.
5. Establish requirements for the interaction design.
6. Evaluate user interfaces using questionnaires, experiments, and usability engineering.
7. Perform iterative design and evaluation for the interaction design.
8. Identify user interface (UI) problems.
9. Understand the limitations in current HCI paradigms and be aware if new trends in HCI.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Students are able to analyze HCI problem and identify the right solution.	K1
1.2	Students are able to identify HCI principles and guidelines.	K1
1...		
2	**Skills :**	
2.1	Students are able to design and build a computer-based system using prototype and GUI interface applying HCI principles.	S1
2...		
3	**Values:**	
3.1	Students identify the HCI principle to create and evaluate a computer-based system.	C1
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Human-Computer Interaction, Human Cognitive System	4
2	Interaction Paradigms	3
3	Interaction Frameworks	4
4	Interaction Styles	4
5	Interaction Design Process (Iterative Design, User-Centered Design, Interaction Design Models)	4
6	Discovery - (Discovery Phase Framework, Collection, Interpretation, Documentation)	4
7	Design - User-Centered Design and Prototyping, Conceptual and Physical Design, Interface Design Standards)	8
8	Design Principles	6
9	Usability Testing	6
10	Color	4
11	Interface Components	4
12	Icons & selected topics	4
Total		55

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Students are able to analyze HCI problem and identify the right solution.	Online Teaching	Quiz, Mid Exam, Final Exam
1.2	Students are able to identify HCI principles and guidelines.	Online Teaching	Quiz, Mid Exam, Final Exam
2.0	**Skills**		
2.1	Students are able to design and build a computer based system using prototype and GUI interface applying HCI principles.	Online Teaching	In-class exercise Assignment
3.0	**Values**		
3.1	Students identify the HCI principle to create and evaluate a computer-based system.	Online Teaching	Project

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	**3, 9**	10%
2	Group Assignment	**4,5**	5%
3	Mid Term Exam	**6**	20%
4	In-class Exercise (prototyping)	**8**	5%
5	Tutorial	**Every week**	5%
6	Project	**10**	10%
7	Class Participation	**All weeks**	5%
8	Final Exam		40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	The Resonant Interface HCI Foundations for Interaction Design (1st Edition), Steven Heim, 2007, Addison-Wesley

Essential References Materials	100 things Every Designer Needs to Know about People (1st Edition), Susan M. Weinschenk, 2011, New Riders.
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Online
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Sketching papers for prototyping, sticky notes for card sorting, Microsoft Visual Studio, Dreamweaver. Online tools such as Wireframe and MockFlow.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Learning Outcomes Feedback	Students	Survey
Final Exam evaluation	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Council
Reference No.	IT Meeting #3 (1440-1441)
Date	(5-2-1440 H)

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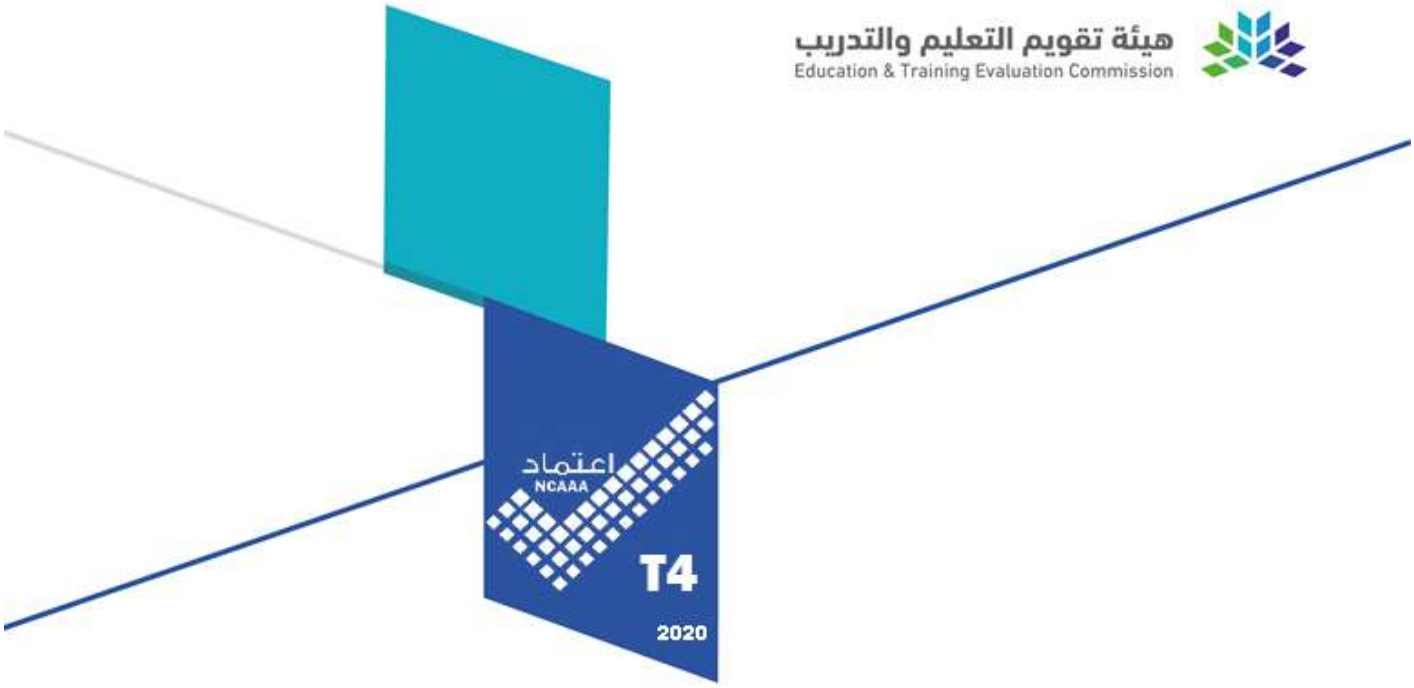

Course Specifications

Course Title:	**System Integration**
Course Code:	**IT412**
Program:	**Information Technology**
Department:	**Information Technology**
College:	**College of Computer and Information Sciences**
Institution:	**Majmaah University**

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2. Assessment Tasks for Students 5

E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **5**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours: (3,0,1)
2. Course type **a.** University ☐ College ☒ Department ☐ Others ☐ **b.** Required ☐ Elective ☐
3. Level/year at which this course is offered: 4th Year
4. Pre-requisites for this course (if any)**:** CS 312 – Software Engineering
5. Co-requisites for this course (if any)**: NIL**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom (Online)**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course focuses on the integration of information systems in organizations, the process by which different computing systems and software applications are linked together functionally or physically. It examines the methods and strategies for combining a set of interdependent systems into a unified and functioning integrated system, where two or more applications are seamlessly interacting and exchanging data. The course will demonstrate the use of tools and techniques in systems integration as well as prove practices for integration projects

2. Course Main Objective

This course had following objectives, Integrate information systems in organizations, Apply the strategies and methods for blending a set of interdependent systems into a functioning or unified whole, Use tools and techniques for systems integration, Manage integration projects.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	Apply the strategies and methods for blending a set of interdependent systems into a functioning or unified whole	S6
2.2	Integrate systems & application in organizations	S1
2.3	Use tools and techniques for Systems Integration	S1
2.4	Manage integration projects.	S2
2.3		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Application Integration Overview, Vertical Integration, Star Integration, Spaghetti Integration, Horizontal Integration or Enterprise Service Bus (ESB)	3
2	Business Oriented Integration, Service Oriented Integration	3
3	Transaction management; concepts, characteristics, and processing	3
4	Portal Oriented Integration	3
5	Middleware Basics & Types	3
6	Serializability & Deadlock	3
7	Linux Administration	3
8	Linux Security	3
9	Use tools and techniques for systems integration	3
10	Introduce the major design, implementation & distributed deployment issues regarding system integration	3
11	Manage integration projects	3
12	Network Operating Systems (NOS)	3
13	e-commerce and e-business applications implementation, cross-servers & multiple locations	3
14	e-sessions migration and the related communications security	3
15	Summary	2
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	Apply the strategies and methods for blending a set of interdependent systems into a functioning or unified whole	Classroom Teaching	Home Work, Mid Exam, Final Exam
2.2	Integrate information systems in organizations	Classroom Teaching	Home Work, Mid Exam, Final Exam
2.3	Use tools and techniques for systems integration	Classroom Teaching	Home Work, Mid Exam, Final Exam
2.4	Manage integration projects	Classroom Teaching	Mini Project
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1			
2	Mid-Term Exam	6	20%
3	Mini-project/ Exercise	10	10%
4	Assignments, Homework and Quiz	4, 7	30%
5	Final Exam	12	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Four office hours per week are dedicated for the students.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Next Generation Application Integration, Linthicum, Addison-Weseley,2003, Setting up LAMP, Rosebrock Filson, Sybex,2004
Essential References Materials	
Electronic Materials	• http://www.sdl.edu.sa • http://lms.mu.edu.sa
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Class Room. Lab.
Technology Resources (AV, data show, Smart Board, software, etc.)	Computer. or Laptop with Windows/Linux.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Projector and Smart Board.

G. Course Quality Evaluation

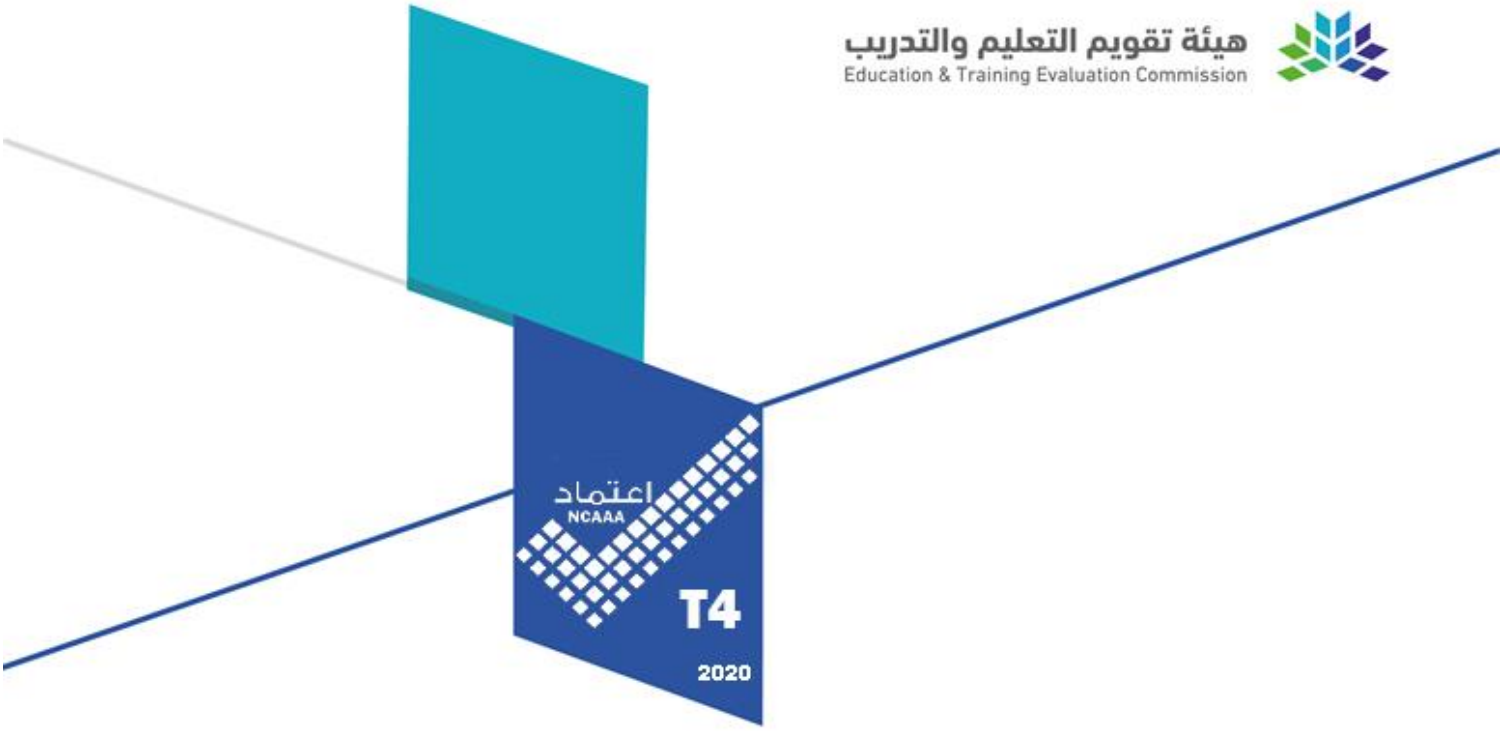
Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Council
Reference No.	IT Meeting 3/1439-40
Date	1441/2/24

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	Information Security
Course Code:	IT 422
Program:	Information Technology
Department:	Information Technology
College:	Colleague of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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A. Course Identification **3**

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B. Course Objectives and Learning Outcomes **3**

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2. Course Main Objective 3

3. Course Learning Outcomes 4

C. Course Content **4**

D. Teaching and Assessment **4**

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2. Assessment Tasks for Students 5

E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **5**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours: **3(3,0,1)**
2. Course type **a.** University ☐ College ☐ Department ☒ Others ☐ **b.** Required ☒ Elective ☐
3. Level/year at which this course is offered: Level 8/ Fourth year
4. Pre-requisites for this course (if any)**:** IT 341: Data Transmission and Computer Networks
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	**44**	**100%**
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	**29**
2	**Laboratory/Studio**	
3	**Tutorial**	**15**
4	**Others** (specify)	
	Total	**44**

B. Course Objectives and Learning Outcomes

1. Course Description

The topics related to this course are listed in the section: course content.

2. Course Main Objective

This course addresses aspects of information security. Topics include objectives of information security systems, Components of an Information System, The Security Systems Development Life Cycle, types of threats and attacks, Ethics and Information Security, overview of Risk Management, Risk Identification, Risk Assessment, Risk Control Strategies, Security Technology: Firewalls and VPNs, Intrusion Detection and Prevention Systems, and Other Security Tools , Cryptography, Cryptographic Tools, Protocols for Secure Communications, Attacks on Cryptosystems, Physical Security, and other security issues.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO2: Aware of the important of security, policies and procedures and knowledge of Computer Forensic	K1
1.2	CLO3: Aware of the security threats and how to mitigate them	K1
1.3	CLO5: Understand the different types of cryptography and its applications	K1
2	**Skills :**	
2.1	CLO1: Design, implement security solutions to protect information	S2
2.2	CLO4: Be able to design secure network	S1
2.3		
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Information Security	4
2	Threats and attacks	4
3	Risk management	4
4	Security planning	4
5	Network Security I	4
6	Network Security II	4
7	Scanning and Analysis Tools	8
8	Cryptology	4
9	Physical security	4
10	Security and Personal	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.1	CLO2: Aware of the important of security, policies and procedures and knowledge of Computer Forensic	Classroom Teaching	Test, Mid Exam, Final Exam
1.2	CLO3: Aware of the security threats and how to mitigate them	Classroom Teaching	Test, Mid Exam, Final Exam
1.3	CLO5: Understand the different types of cryptography and its applications	Classroom Teaching	Test, Mid Exam, Final Exam
2.0	**Skills**		
2.1	CLO1: Design, implement security solutions to protect information	Lab based assiognment/Project& Exercise Teaching	Lab Based Assignments, Lab Test, Mid Exam, Final Exam, Mini Project.
2.2	CLO4: Be able to design secure network	Classroom & Exercise Teaching	Lab Based Assignments, Lab Test, Mid Exam, Final Exam, Mini Project.
…			
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Tests(2)	Week 4, Week 12	10%
2	Mid Term Exam	Week 8	20%
3	Exercise	Every Week	10%
4	Lab Based Assignments/ Mini Project Presentation	Week 8,week 14	20%
5	Final Exam	Week 16	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Principles of Information Security, Michael E. Whitman and Herbert J. Mattord, 5th ed., Thomson/Cengage Learning, 2016
Essential References Materials	
Electronic Materials	Web References and downloads: http://lms.mu.edu.sa
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Course instructor	Direct
Course Survey in the middle of the semester and at the end of the semester (Effectiveness of teaching and assessment)	Students	Indirect
Extent of achievement of course learning outcomes	Students	Indirect
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

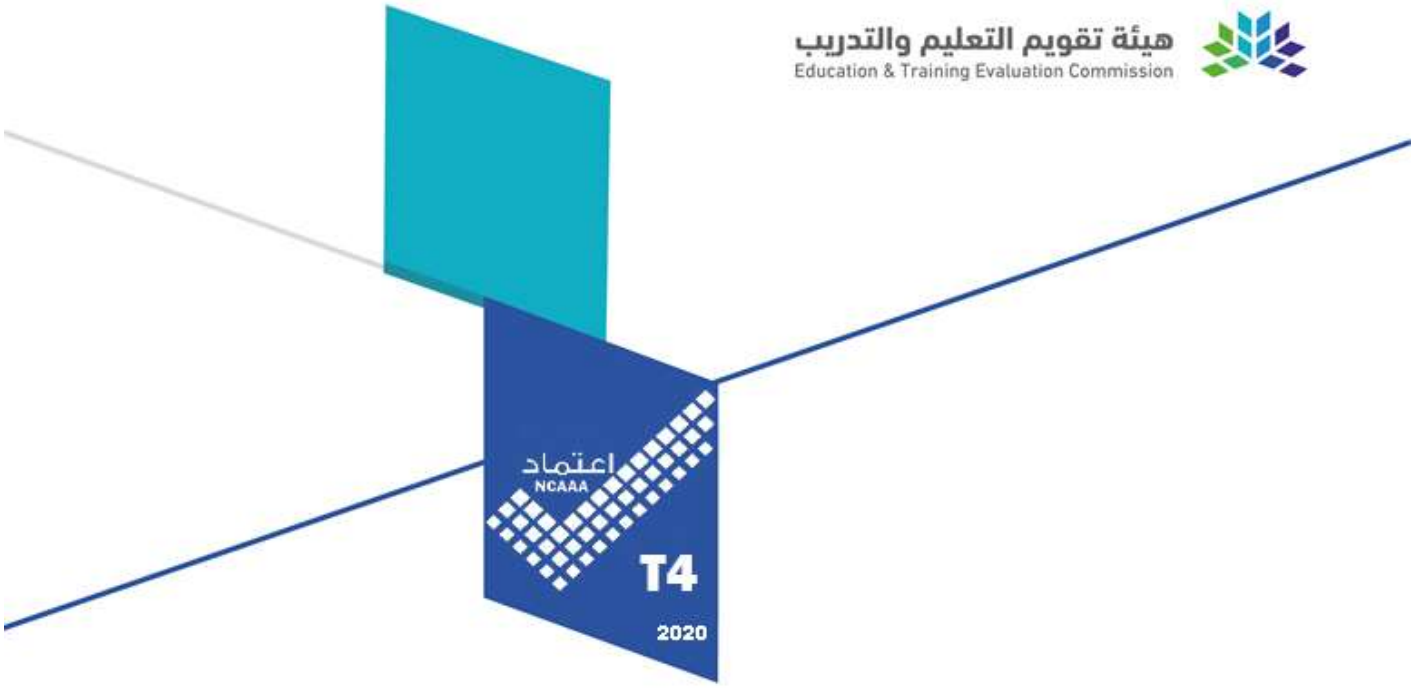
H. Specification Approval Data

Council / Committee	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	Computer Networks Lab
Course Code:	**IT423**
Program:	**Information Technology**
Department:	**Information Technology**
College:	**College of Computer and Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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6. Mode of Instruction (mark all that apply) 3

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1. Course Description 3

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2. Assessment Tasks for Students 6

E. Student Academic Counseling and Support 6

F. Learning Resources and Facilities 6

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation 7

H. Specification Approval Data 7

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☐ ✓ Department ☐ ✓ Others ☐ **b.** Required ☐ Elective ☐
3. Level/year at which this course is offered:
4. Pre-requisites for this course (if any)**:** **IT 321**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1	**Lecture**	
2	**Laboratory/Studio**	44
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course provides students with hands-on training regarding the design, configuration, troubleshooting, modelling and evaluation of computer networks. This course covers Peer-to-Peer and Server-based networks, Transmission media, MAC & IP addressing, Address Resolution Protocol (ARP), basic troubleshooting tools, IP routing Protocols such as RIP, IGRP, and OSPF, Transport protocols: TCP and UDP, Virtual LANs, Wireless networks, and Network security.
Students will also be introduced to network modelling and they will have the opportunity to build some simple networking models and evaluate their design approaches and expected network performance.

2. Course Main Objective

1. Understanding the Peer-to-Peer and Server-based networks

2. Understand the MAC & IP, LAN components and their interconnection addressing and evaluate different routing techniques,
3. Students able to construct access control lists for the routers and packet filtering firewalls.
4. Understanding the virtual network and ability to construct and configure virtual networks.
5. Understand the security standard, and configure the security standard into network.
6. Ability to Construct and configure wireless networks.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	Understanding the Peer-to-Peer and Server-based networks	S2
2.2	Understand the MAC & IP, LAN components and their interconnection addressing and evaluate different routing techniques,	S2
2.3	Students are able to construct access control lists for the routers and packet filtering firewalls.	S2
2.4	Understanding the virtual network and the ability to construct and configure virtual networks.	S4
2.5	Understand the security standard, and configure the security standard into the network.	S4
2.6	Ability to Construct and configure wireless networks.	S4
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	To study computer network devices, transmission media and types of networks.	4
2	Ethernet LAN, Token Ring, Switched LANs, Network Design	4
3	IP addresses, Address Resolution Protocol (ARP)	4
4	Dynamic Routing Protocols Distance Vector Routing Protocols	4
5	Link-State Dynamic Routing, RIP Routing	4
6	VLAN Implementations VLAN Security and Design VLAN Segmentation	4
7	Configure Static routing. Characteristics of OSPF	4

	Configuring Single/multi-Area OSPFv2 Configuring Single/multi-Area OSPFv3	
8	Wireless LAN Concepts, Wireless LAN Operation, Wireless LAN Security, Wireless LAN Configuration, Simulation of the different wireless routing protocols to check their performance	4
9	Simulate the different routing protocols with failure and recovery rate to check their performance. Transport Layer Protocols TCP and UPD Simulation	4
10	ACL Operation Standard IPv4 ACLs Extended IPv4 ACLs Troubleshoot ACLs	4
11	VPNs Site-to-Site GRE Tunnels Introducing IPsec Tunnels Remote Access	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	Understanding the Peer-to-Peer and Server-based networks	Class teaching	Class Test, Mid Exam, Final Exam
2.2	Understand the MAC & IP, LAN components and their interconnection addressing and evaluate different routing techniques,	Class teaching Lab Exercises	Class Test, Mid Exam, Final Exam
2.3	Students are able to construct access control lists for the routers and packet filtering firewalls.	Class teaching Lab Exercises	Class Test, Mid Exam, Final Exam
2.4	Understanding the virtual network and the ability to construct and configure virtual networks.	Class teaching Lab Exercises	Class Test, Mid Exam, Final Exam
2.5	Understand the security standard, and configure the security standard into the network.	Class teaching Lab Exercises	Class Test, Mid Exam, Final Exam
2.6	Ability to Construct and configure wireless networks.	Class teaching Lab Exercises	Class Test, Mid Exam, Final Exam
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz	2,4,8	15
2	Midterm	6	20
3	Assignment	11	15
4	Lab	11	10
5	Final	12	40
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for the availability of faculty and teaching staff for individual student consultations and academic advice :

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	CCNA Routing Switching Essential Cisco Press Larry L. Peterson & Bruce S. Davie, *Computer Networks - A Systems Approach*, 5th Edition, the Morgan Kaufmann Series in Networking.
Essential References Materials	
Electronic Materials	https://www.netacad.com/ http://www.sdl.edu.sa http://lms.mu.edu.sa
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Class Room. Lab.
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Router and switches

G. Course Quality Evaluation

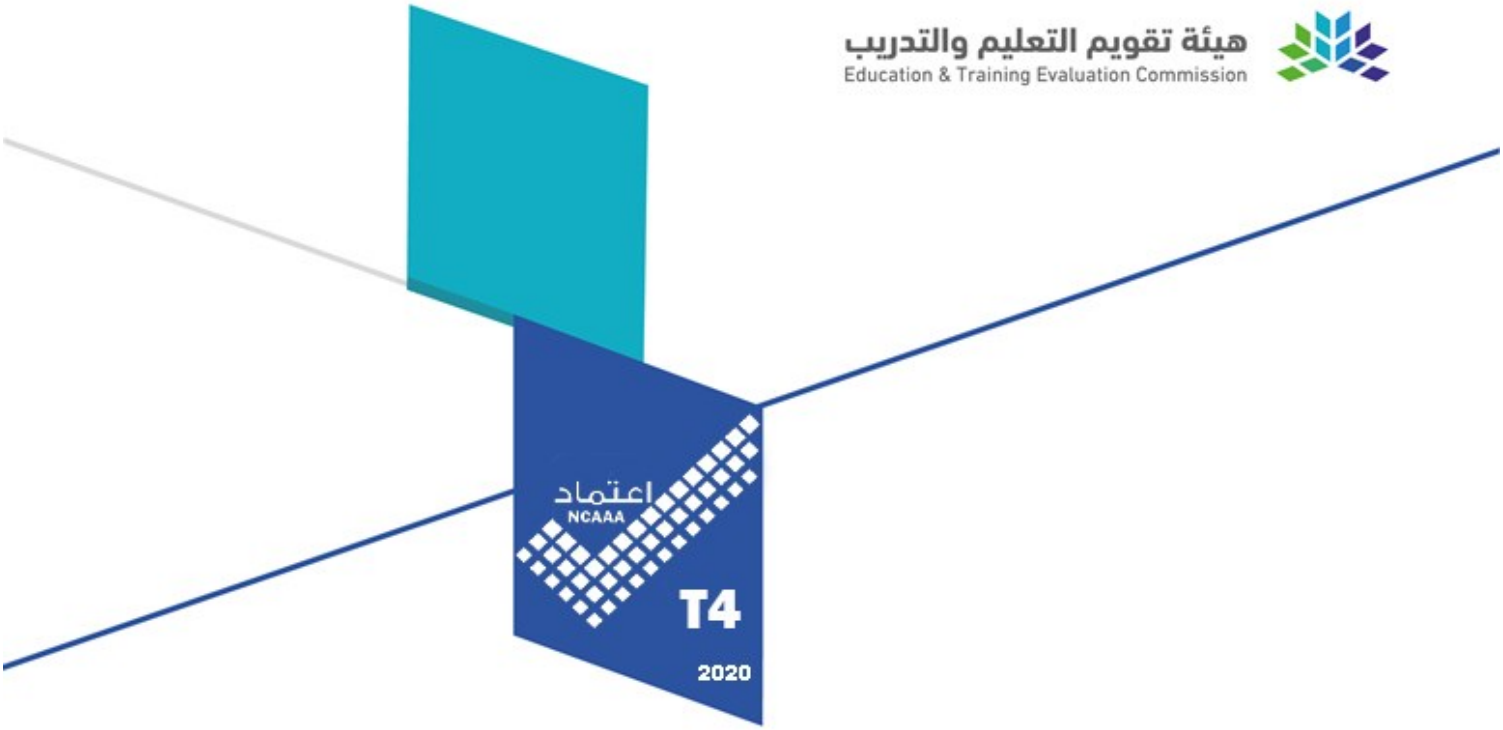
Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts	Faculty Member	Review
Verification Peer faculty members Review	Student	Feedback

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Information Technology
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	Cloud Computing
Course Code:	IT424
Program:	Information Technology
Department:	Information Technology
College:	College of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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A. Course Identification ..... Error! Bookmark not defined.

6. Mode of Instruction (mark all that apply) ..... **Error! Bookmark not defined.**

B. Course Objectives and Learning Outcomes ..... Error! Bookmark not defined.

1. Course Description ..... **Error! Bookmark not defined.**

2. Course Main Objective ..... **Error! Bookmark not defined.**

3. Course Learning Outcomes ..... **Error! Bookmark not defined.**

C. Course Content ..... Error! Bookmark not defined.

D. Teaching and Assessment ..... Error! Bookmark not defined.

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods ..... **Error! Bookmark not defined.**

2. Assessment Tasks for Students ..... **Error! Bookmark not defined.**

E. Student Academic Counseling and Support ..... Error! Bookmark not defined.

F. Learning Resources and Facilities ..... Error! Bookmark not defined.

1.Learning Resources ..... **Error! Bookmark not defined.**

2. Facilities Required 6

G. Course Quality Evaluation **7**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours: **3(3,0,1)**
2. Course type **a.** University ☐ College ☐ Department ☒ Others ☐ **b.** Required ☐ Elective ☐
3. Level/year at which this course is offered: Level 11
4. Pre-requisites for this course (if any)**:** **IT 341: Data Transmission and Computer Networks**
5. Co-requisites for this course (if any)**:** NIL

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	55	100%
2	Blended		
3	E-learning		
4	Correspondence		
5	Other		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	44
2	Laboratory/Studio	
3	Tutorial	11
4	Others (specify)	
	Total	55

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This course offers students a collaborative and hands-on study on basics of cloud computing, various services offered by cloud providers such as Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), Software-as-a-Service (SaaS) explain in details, Different types of cloud models such as Private, Public, Hybrid clouds, virtualization, security and privacy issues, performance and systems issues, capacity planning, disaster recovery, challenges in implementing clouds, data centers, hypervisor CPU and memory management Students will be exposed to current practices in cloud computing.

2. Course Main Objective

1) Students should be able to explain the benefits of cloud computing.
2) Students should Identify and differentiate various infrastructure components.
3) Students should be able to explain virtualization requirements and the tools which can be used.
4) Students should be able to differentiate between public, private and hybrid clouds.
5) Students should be able identify cloud relate security issues.
6) Understand cloud management and deployment fundamentals.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	CLO1- Students should be able to explain the benefits of cloud computing.	K2
1.2	CLO2- Students should Identify and differentiate various infrastructure components.	K1
1.3	CLO5- Students should be able identify cloud relate security issues.	K2
1...		
2	**Skills :**	
2.1	CLO3- Students should be able to explain virtualization requirements and the tools which can be used.	S1
2.2	CLO4-Students should be able to differentiate between public, private and hybrid clouds.	S1
2.3	CLO6- Understand cloud management and deployment fundamentals.	S1
2...		
3	**Competence:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction to cloud computing** • **Introduction to cloud computing** • **Defining cloud computing** • **Types of Cloud**	7
2	**Fundamental Concepts and Models**	4
3	• **Cloud Enabling Technologies** • **Security**	7

4	**Understanding Cloud Computing Mechanisms** • **Exploring Cloud Computing Stack** • **Cloud Infrastructure Mechanism** • **Specialized Cloud Mechanism** • **Cloud Management Mechanism**	8
5	• **Cloud Security Mechanism**	4
6	**Exploring cloud computing architectures** **Fundamental cloud computing Architectures**	8
7	• **Understanding Abstraction and Virtualization** • **Understanding Hypervisor**	6
8	**Cloud Delivery Model Considerations**	4
9	**Cost Metrics and Pricing Models**	4
10	**Service Quality Metrics and SLAs**	2
Total		55

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	CLO1- Students should be able to explain the benefits of cloud computing.	Classroom Teaching	Test, Mid Exam, Final Exam, Homework
1.2	CLO2- Students should Identify and differentiate various infrastructure components.	Classroom Teaching	Test, Mid Exam, Final Exam, Homework
1.3	CLO5- Students should be able identify cloud relate security issues.	Classroom Teaching	Final Exam, Homework
2.0	**Skills**		
2.1	CLO3- Students should be able to explain virtualization requirements and the tools which can be used.	Classroom Teaching	Mid Exam, Final Exam, Homework
2.2	CLO4-Students should be able to differentiate between public, private and hybrid clouds.	Classroom Teaching	Final Exam
2.3			
3.0	**Competence**		
3.1	CLO6- Understand cloud management and deployment fundamentals.	Classroom Teaching	Exercises/Homework, Lab and Mini Project
3.2			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	In-class Tests (written test)	Week 3,	10%
2	Mid Term Exam (written test)	Week6	20%
3	Attendance Participation	Every Week ,	5%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
3	Project and Presentation (oral presentation)	Week 10	10%
4	Labs , Exercises/Homework	Every Week	15%
5	Final Exam (written test)	Week 16	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for the availability of faculty and teaching staff for individual student consultations and academic advice:
Each student is assigned to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Cloud Computing Concepts, Technology and Architecture, by Thomas Erl, Prentice Hall, Service Tech Press, ISBN-13: 978-0133387520, 1st Edition, May 20,2013.
Essential References Materials	1. Cloud Computing Bible, by Barrie Sosinsky, Wiley Publication, ISBN-13: 978-0470903568, 1st Edition , Jan 11, 2011 . 2. Cloud Computing from Beginning to End, by Ray Rafael's, ISBN-13: 978-1511404587, CreateSpace Independent Publishing Platform , 1st Edition April 2015 3. Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS), by Michael J. Kavis, Wiley Publishers, 1st Edition , Jan 28,
Electronic Materials	• **Online Course Notes available on D2L** • **Online reference materials available on SDL**
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Class Room. Lab.
Technology Resources (AV, data show, Smart Board, software, etc.)	Computer. or Laptop with Windows/Linux.

Item	Resources
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Projector and Smart Board.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Council
Reference No.	IT Meeting #3 (1440-1441
Date	5/2/1441

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**System Administration and Maintenance**
Course Code:	**IT432**
Program:	Computer Science/ Information Technology
Department:	Information Technology
College:	College of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours:	3 (3,0,1)
2. Course type	
a.	University ☐ College ☐ Department ☒ Others ☐
b.	Required ☒ Elective ☐
3. Level/year at which this course is offered:	**Level 12**
4. Pre-requisites for this course (if any)**:**	CS360 Software Engineering
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		
2	**Blended**		
3	**E-learning**		
4	**Distance learning**	44	100%
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	30
2	**Laboratory/Studio**	
3	**Tutorial**	14
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course aims to give students the fundamentals of operating Systems administration and maintenance. Focus will be on installation, maintenance and managing of several systems for multi-user environments

2. Course Main Objective

1. Install, administrate and maintain operating systems.
2. Use techniques for troubleshooting and modifying operating systems.
3. Manage accounts on operating systems.
4. Configure and modify network services for operating systems.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO2 Use techniques for troubleshooting and modifying operating systems.	K1
1.2		
1.3		
1...		
2	**Skills :**	
2.1	CLO1 Install, administrate and maintain operating systems.	S2
2.2	CLO3 Manage accounts on operating systems.	S2
2.3	CLO4 Configure and modify network services for operating systems.	S2
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction of Systems administration	2
2	Operating System Installation & configuration	4
3	File System Organization	3
4	Network Services (HTTP, LPR, NFS, SMTP, SSH, etc.)	4
5	Performance Monitoring	6
6	System Support and Maintenance, Application Installation & configuration	8
7	Server Processes	2
8	Client Processes, Application Support & Maintenance	5
9	Server Administration & Management, User and Group Management	6
10	Security Management, Job Scheduling & Automation	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO2: Use techniques for troubleshooting and modifying operating systems.	Classroom Teaching	Mid Exam, Final Exam
1.2			
…			
2.0	**Skills**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.1	CLO1: Install, administrate and maintain operating systems.	Classroom Teaching and Lab Exercises	Lab Based Assignments, Mid Exam, Final Exam
2.2	CLO3: Manage accounts on operating systems	Classroom Teaching and Lab Exercises	Lab Based Assignments, Mid Exam, Final Exam
2.3	CLO4: Configure and modify network services for operating systems.	Classroom Teaching and Lab Exercises	Lab Based Assignments, Mid Exam, Final Exam
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	Week 2	5%
2	Assignment 1	Week 3	5%
3	Assignment 2	Week 5	5%
4	Midterm Exam	Week 6	20%
5	Assignment 3	Week 7	10%
6	Quiz 2	Week 8	5%
7	Assignment 4	Week 9	5%
8	Assignment 5	Week 11	5%
9	Final Exam	Week 12	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Students can meet the faculty during advising hours or whenever the faculty is in the office.

Office Hours: 4 Hours/Week

Students also can email the faculty anytime during the weekdays

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Linux Administration – A Beginners Guide by Wale Soyinka, McGrawHill, 2012
Essential References Materials	
Electronic Materials	

Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Internet Connection because it's an online class
Technology Resources (AV, data show, Smart Board, software, etc.)	
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Virtual machine (Oracle VM VirtualBox or VMware Workstation Pro)

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Applied Cryptography
Course Code:	IT 461
Program:	IT
Department:	IT
College:	College of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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D. Teaching and Assessment **5**

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2. Assessment Tasks for Students 5

E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours:	**3**
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☐ Elective ☑
3. Level/year at which this course is offered:	**Track**
4. Pre-requisites for this course (if any)**:**	**70 credits**
5. Co-requisites for this course (if any)**:**	**NIL**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	%100
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	11
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course explores modern cryptographic (code making) and cryptanalytic (code breaking) techniques in detail. Topics covered include cryptographic primitives such as symmetric encryption, public key encryption, hashing functions, digital signatures, and message authentication codes, cryptographic protocols, key establishment, Electronic commerce, standard methods of encoding of digital signatures and certificates (X.509), Financial cryptography, payment systems, crypto currencies and bitcoin.

2. Course Main Objectives

At the end of the course, the students will be able to:

1. Learn the current state of the cryptographic approaches used in secure systems.
2. Analyze hashing functions, message authentication codes and key establishment.
3. Understand digital signatures in practice with legal/regulatory aspects.
4. Understand payment systems, bitcoin and crypto currencies.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	CLO1 Understand and practice the concept of cryptographic algorithms	S1
2.2	CLO2: Learn the current state of the art techniques that are employed for defeating secure systems.	S1
2.3	CLO4: Understand Digital signatures in practice with legal/regulatory aspects	S3
2...		
3	**Values:**	
3.1	CLO3: Analyze hashing functions, message authentication codes and key establishment	V2
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to cryptography, Symmetric cryptography	3
2	Steam Ciphers and Block Ciphers	3
3	Data Encryption Standard (DES)	3
4	RSA Algorithm	3
5	Diffie-Hellman Key Exchange, El Gamal Encryption Scheme	3
6	Digital Signatures	3
7	Cryptographic Hash Functions, Secure Hash Algorithm (SHA)	3
8	Message Authentication Codes, MACs Based on Hash Functions: HMAC	3
9	Key Establishment Using Symmetric and Asymmetric techniques	3
10	Secure Sockets Layer (SSL), Transport Layer Security (TLS)	3
11	Payment Systems	3
Total		33

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	CLO1 Understand and practice the concept of cryptographic algorithms	Classroom Teaching	Class Test, Mid Exam, Final Exam
2.2	CLO2: Learn the current state of the art techniques that are employed for defeating secure systems.	Classroom Teaching	Class Test, Mid Exam, Final Exam
…	CLO4: Understand Digital signatures in practice with legal/regulatory aspects	Classroom Teaching	Class Test, Mid Exam, Final Exam
3.0	**Values**		
3.1	CLO3: Analyze hashing functions, message authentication codes and key establishment	Classroom Teaching	Class Test, Mid Exam, Final Exam
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week 5, 10,13	20 %
2	Assignments	Week 7, 13	20%
3	Midterm Exam	Week 8	20 %
4	Final Exam	Week 16	40 %
5			
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Each student is allotted to an academic advisor for guidance and counseling.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• Paar, Christof, and Jan Pelzl. Understanding cryptography: a textbook for students and practitioners. Springer Science & Business Media, 2009.
Essential References Materials	• Lindell, Yehuda, and Jonathan Katz. Introduction to modern cryptography. Chapman and Hall/CRC, 2014. ISBN-13: 978-1466570269 • Smart Cards, Tokens, Security and Applications by Keith E. Mayes and Konstantinos Markantonakis. ISBN-13: 978-0-387-72197-2 e-ISBN-13: 978-0-387-72198-9, 2017 Springer Science • W. Stallings, "Cryptography and network security: principles and practice" Pearson; 2017. ISBN-13: 978-0134444284
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom, laboratories
Technology Resources (AV, data show, Smart Board, software, etc.)	PC with Windows/Linux, LCD Projector, Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet

G. Course Quality Evaluation

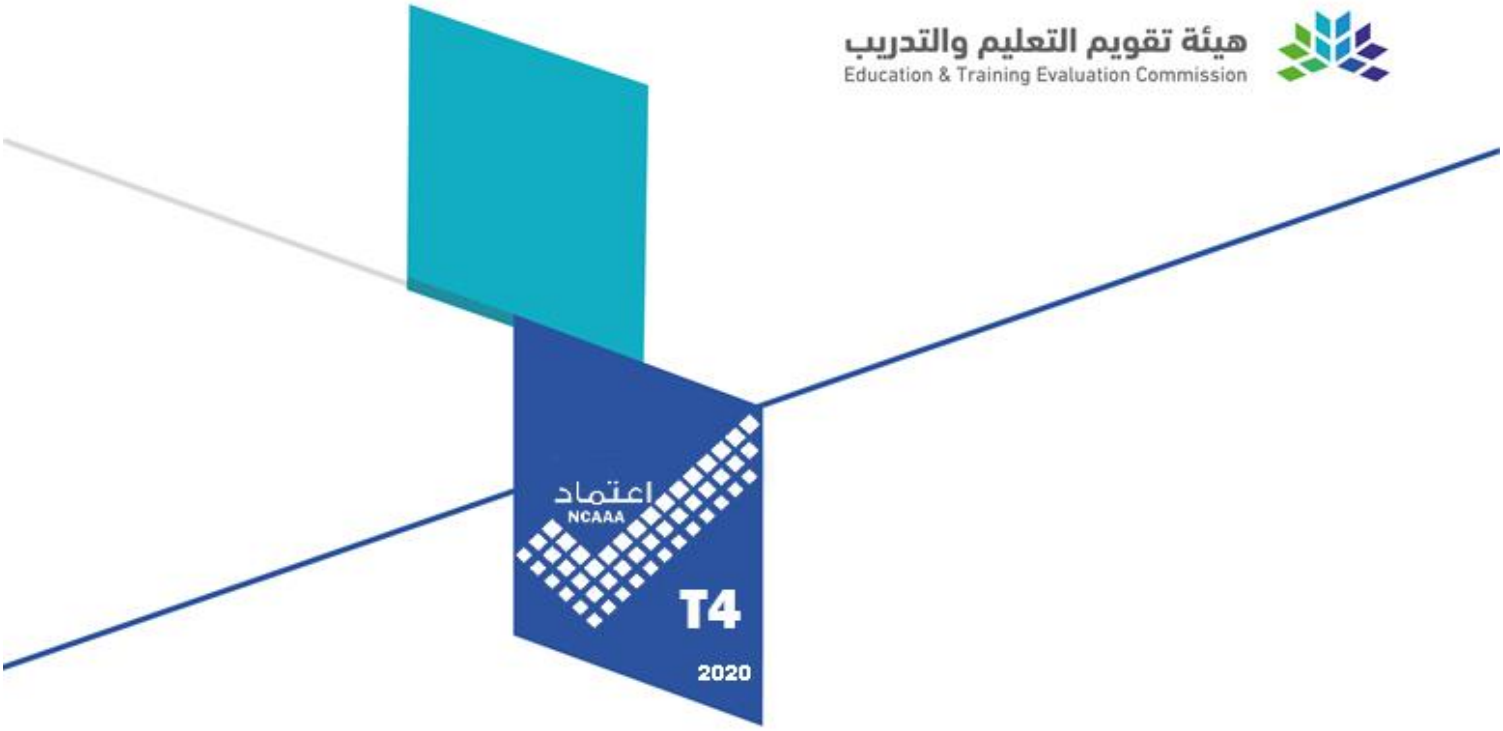
Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Review Committee member	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	Network Security
Course Code:	**IT 462**
Program:	INFORMATION TECHNOLOGY
Department:	INFORMATION TECHNOLOGY
College:	College of Computer and Information Sciences
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support **6**

F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 7

G. Course Quality Evaluation **7**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☒ Department ☐ Others ☐ **b.** Required ☐ Elective ☒
3. Level/year at which this course is offered: Level 10
4. Pre-requisites for this course (if any)**:** IT 341
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course aims to introduce secure networking, security attacks, network security practice, email security, IP security, web security, intrusion detection and prevention systems. In this course students will also learn advanced concepts in network security and their implementation in network and how to analyze and assess security of network installations in different setups. Hand on experiments include the execution of attacks, the setup of intrusion detection and prevention, securing computers and wired and wireless networks.

2. Course Main Objective

Aim of the course is to understand and Identify computer and network security threats, classify the threats and develop a security model to prevent, detect and recover from the attacks.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understand the security issues involved with different Network.	K1
1.2	Understanding the Wireless Security Architectures	K1
1.3		
1...		
2	**Skills :**	
2.1	Design secure network architectures by using the basic concepts of secure communication.	S1
2.2	Describe security assessment of networks and identify some of the factors driving the need for network security	S1
2.3		
2...		
3	**Values:**	
3.1	Evaluate and recognize a problem as being a possible network security threat.	V2
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction to Network Security:** The OSI Security Architecture, Security Attacks, Security Services, Security Mechanisms, Model for Network Security and Standards.	5
2	**Network Access Control:** Network Access Control overview, Authentication protocol, IEEE 802. IX Port Based Network Access Control.	5
3	**Network Security Threat Model:** Types of threats, Threats against the application (Cross-site scripting, Session hijacking, Information Disclosure), Threat modeling	6
4	**Wireless Network Security:**	6

	Wireless & Mobile Device Security, IEEE 802.11 Wireless LAN, IEEE 802.11i Wireless LAN Security	
5	**Transport-Level Security:** Secure Socket Layer, Transport Layer Security, HTTPS, Secure Shell (SSH)	5
6	**Electronic Mail Security:** Internet mail Architecture, E-mail formats, E-mail threats and security, Pretty Good Privacy, S/MIME, Domain Keys Identified Mail, Domain-based message authentication	6
7	**IP Security:** IP Security Policy Encapsulating security payload Internet Key Exchange Cryptographic Suites	6
8	**Intrusion detection & Firewall:** Intrusion Detection Password Management Firewall Characteristics Types of Firewalls Firewall Basing Firewall Location and Configurations	5
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Understand the security issues involved with different Network	Classroom Teaching	Test, Mid Exam, Final Exam
1.2	Understanding the Wireless Security Architectures	Classroom & Exercise Teaching	Mini Project, Mid Exam, Final Exam, Mini Project.
…			
2.0	**Skills**		
2.1	Describe security assessment of networks and identify some of the factors driving the need for network security	Classroom & Exercise Teaching	Mini Project, Mid Exam, Final Exam, Mini Project.
2.2	Design secure network architectures by using the basic concepts of secure communication.	Classroom & Exercise Teaching	Mini Project, Mid Exam, Final Exam, Mini Project.
…			

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.0	**Values**		
3.1	Evaluate and recognize a problem as being a possible network security threat.	Classroom & Exercise Teaching	Mini Project, Mid Exam, Final Exam, Mini Project.
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz	Every two weeks	20%
2	Mid Term Exam	Week 6	20%
3	Assignment (2)	Every two weeks	10%
4	Lab Based Assignments/ Mini Project Presentation	Every two weeks	10%
5	Final Exam	Week 11	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Network Security Essentials: Applications and Standards (6th Edition) by William Stallings ISBN-13: 978-0134527338 Pearson (Aug 7, 2016)
Essential References Materials	1. Introduction to Network Security by Douglas Jacobson Chapman & Hall/CRC Computer and Information Science Series, ISBN-13: 978-1584885436 2. Introduction to Network Security: Theory and Practice 2nd Edition, by JieWang , Zachary A. Kissel, Publisher: Wiley; 2 edition (October 5, 2015), ISBN-13: 978-1118939482
Electronic Materials	

Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Learning Outcomes Feedback	Students	Survey
Final Exam evaluation	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Council
Reference No.	
Date	September 2022

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Enterprise Cybersecurity
Course Code:	IT 463
Program:	IT
Department:	IT
College:	College of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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D. Teaching and Assessment **5**

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E. Student Academic Counseling and Support **6**

F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 7

G. Course Quality Evaluation **7**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours: 3(3,0,1)
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☐ Elective ☑
3. Level/year at which this course is offered: **Level 10**
4. Pre-requisites for this course (if any)**:** **IT 422 (Information Security)**
5. Co-requisites for this course (if any)**:NIL**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	**44**	**100%**
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	**33**
2	**Laboratory/Studio**	
3	**Tutorial**	**11**
4	**Others** (specify)	
	Total	**44**

B. Course Objectives and Learning Outcomes

1. Course Description

Enterprise Cybersecurity course presents a comprehensive framework for managing all aspects of an enterprise cybersecurity program. It enables an enterprise to architect, design, implement, and operate a coherent cybersecurity program that is seamlessly coordinated with policy, programmatic, IT life cycle, and assessment. Topics include: Cybersecurity Challenge, Enterprise Cybersecurity Architecture, Implementing Enterprise Cybersecurity, Operating Enterprise Cybersecurity, Enterprise Cybersecurity and the Cloud, Enterprise Cybersecurity for Mobile, building an Effective Defense, responding to Incidents, Managing a Cybersecurity Crisis.

2. Course Main Objective

Analyze and resolve security issues in networks and computer systems to secure an IT infrastructure. Design, develop, test and evaluate secure software. Develop policies and procedures to manage enterprise security risks.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
2	**Skills :**	
2.1	CLO 1- Discover how enterprise cybersecurity is evolving and will continue to evolve.	S1
2.2	CLO 2. Know and apply the methodology of targeted attacks.	S1
2.3	CLO 3 Understand why cybersecurity capabilities are the foundation of effective cyber defenses.	S1
2.4	CLO 5. Understand the operational processes and supporting information systems of a successful enterprise cybersecurity	S1
3	**Values:**	
3.1	CLO4. Analyze a cybersecurity program's policy, people, budget, technology, and assessment.	V2
3.2		
3.3		
3...		

C. Course Content

No.	Topics	Teaching hours
1	**Cybersecurity Challenges**: Cyberattacks, Types of Cyberattacks, Cyber intrusion, Cybersecurity frameworks, process and challenges	3
2	**Enterprise Cybersecurity Architecture** System administration, Endpoint, server, and device security, Data protection Monitoring, vulnerability and patch management Disaster recovery and physical protection	6
3	**Implementing Enterprise Cybersecurity** IT system Life Cycle, Security policies and scopes Security controls and capabilities Security technologies and effectiveness	6

4	**Operating Enterprise Cybersecurity** IT Operational process and responsibilities, Vulnerability management and incident response process, Cybersecurity process	6
5	**Enterprise Cybersecurity and the Cloud** Cloud protection challenges Planning Enterprise security for the cloud	5
6	**Enterprise Cybersecurity for Mobile** Challenges with mobile devices Legal agreements for data protection Multi-factor authentication	5
7	**Building an Effective Defense** Enterprise attack sequence Business challenges to security Effective cyber defense	3
8	**Responding to Incidents** Incident response process	3
9	**Managing a Cybersecurity Crisis** Devastating cyberattacks Decision -making process Managing recovery process Cybersecurity and IT capabilities Cybersecurity Auditing Methodology Enterprise cybersecurity assessments	4
10	**Revision**	**3**
	Total	**44**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO 1- Discover how enterprise cybersecurity is evolving and will continue to evolve.	Classroom Teaching	Test, Mid Exam, Final Exam
1.2	CLO 3 Understand why cybersecurity capabilities are the foundation of effective cyber defenses.	Classroom Teaching	Test, Mid Exam, Final Exam
1.3	CLO 5. Understand the operational processes and supporting information	Classroom Teaching	Test, Mid Exam, Final Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	systems of a successful enterprise cybersecurity		
2.0	**Skills**		
2.1	CLO 2. Know the methodology of targeted attacks.	Classroom & Exercise Teaching	Mini Project,Lab Based Assignments, Lab Test, Mid Exam, Final Exam, Mini Project.
2.2			
…			
3.0	**Values**		
3.1	CLO4. Analyze a cybersecurity program's policy, people, budget, technology, and assessment.	Classroom Teaching, Project	Class Test, Mid Exam, Final Exam
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Test(2)	Week 3 & Week 9	20%
2	Mid Term Exam	Week 6	20%
3	Assignment	Week 8 &Week 10	10%
4	Case Study	Week Week 9	5%
5	Final Exam	Week12	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Scott Donaldson , Stanley Siegel , Chris K. Williams, Abdul Aslam , Enterprise Cybersecurity: How to Build a Successful Cyberdefense Program Against Advanced Threats, Apress, 1st ed. Edition, 2018, ISBN-13: 978-1430260820

Essential References Materials	1. Aaron Woody, Enterprise Security: A Data-Centric Approach to Securing the Enterprise, 2013, ISBN-13: 978-1849685962 2. Brian J Allen, Rachelle Loyear , Enterprise Security Risk Management: Concepts and Applications, 2017, Rothstein Associates, Incorporated, ISBN-13: 978-1944480448
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Course instructor	Direct
Course Survey in the middle of the semester and at the end of the semester (Effectiveness of teaching and assessment)	Students	Indirect
Extent of achievement of course learning outcomes	Students	Indirect
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	

Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Software Security Design
Course Code:	IT 464
Program:	Information Technology
Department:	Information Technology
College:	CCIS
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities **5**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours **(3, 1, 0)**
2. Course type **a.** University [x] College [ ] Department [ ] Others [ ] **b.** Required [ ] Elective [x]
3. Level/year at which this course is offered: 9
4. Pre-requisites for this course (if any)**:** Cyber Security Findamentals
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	11
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course will provide students to understand the theories and tools used for secure software design, threat analysis, secure coding, and vulnerability analysis. Students will study, in-depth, vulnerability classes to understand how to protect software and how to develop secure software. This course will also cover various analysis and design techniques for improving software security.

2. Course Main Objective

- Understand the theories and tools used for secure software design, threat analysis, secure coding, and vulnerability analysis
- Analyze secure software design and post-implementation security success factors, deliverables, and metrics

- Identify the nature and challenges of Software Security
- Understand the relationship between policy and security
- Apply various methodologies and technologies for Software Assurance
- Analyze vulnerability analysis and Intrusion Detection

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Describe the risks, threats, and vulnerabilities associated with the transformed digital world	K1
1.2	Understand how to protect software and how to develop secure software	K1
1.3		
1...		
2	**Skills :**	
2.1	Address issues in Web applications Security and technologies	S4
2.2	Apply code auditing practices, and analyze vulnerabilities in memory management	S2
2.3		
3	**Values:**	
3.1		
3.2		

C. Course Content

No	List of Topics	Contact Hours
1	Discussion of the risks, threats, and vulnerabilities associated with the transformation to a digital world, including a look at how business, government, and individuals operate today	6
2	Code auditing: theory, practice, proven methodologies, and secrets of the trade	3
3	Bridging the gap between secure software design and post-implementation review	6
4	Performing architectural assessment: design review, threat modeling, and operational review	6
5	Analyzing vulnerabilities related to memory management, data types, and malformed data	3
6	Evaluating network software: IP stacks, firewalls, and common application protocols	4
7	Analyze Web applications Security and technologies	6
8	Outlines a holistic business-savvy SDL framework that includes people, process, and technology	3
9	Highlights the key success factors, deliverables, and metrics for each phase of the SDL	3
10	Study the most recent updates in Information Systems Security laws, certificates, standards, amendments, and the proposed Federal Information Security Amendments	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Describe the risks, threats, and vulnerabilities associated with the transformed digital world	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
1.2	Understand how to protect software and how to develop secure software	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
…			
2.0	**Skills**		
2.1	Address issues in Web applications Security and technologies	Classroom Teaching	Assignment, Final Exam, Lab Based Exercises
2.2	Apply code auditing practices, and analyze vulnerabilities in memory management	Classroom Teaching	Assignment, Final Exam, Lab Based exercises
…			
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	4, 8	10%
2	Mid Term Exam	6	20%
3	Assignment	3, 5, 9	10%
4	Lab Based Exercises	Weekly	
5	Final Exam	12	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

- Available for a minimum of 4 hours per week/course, as communicated to the students.
- Student also contacts through social networking websites / D2L/ Email for advice and consultations

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	1. Cyber Security Engineering: A Practical Approach for Systems and Software Assurance (SEI Series in Software Engineering) 1st Edition , Nancy R. Mead and Carol Woody, Addison-Wesley Professional, 2017. 2. Principles of Computer Security, Fourth Edition, Wm. Arthur Conklin and at el., McGraw-Hill Education, 2015
Essential References Materials	3. Computer Security: Art and Science (2 Volume Set) 1st Edition, Matt Bishop, Addison-Wesley Professional, 2015
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom, PC Laboratory
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Learning Outcomes Feedback	Students	Survey
Final Exam evaluation	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Security Governance
Course Code:	IT 465
Program:	Information Technology
Department:	Information Technology
College:	CCIS
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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D. Teaching and Assessment **4**

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E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours **(3, 0, 1)**
2. Course type **a.** University [x] College [ ] Department [ ] Others [ ] **b.** Required [ ] Elective [x]
3. Level/year at which this course is offered: 9
4. Pre-requisites for this course (if any)**:** Cyber Security Fundamentals
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description This course introduces the full spectrum of security controls necessary for establishing governance in computing environments, i.e., technological, administrative, and physical, including: Information security governance, Developing Information security strategy, Security Management, Risk Management, Information security policies, Managerial, technical and operation Controls, Security communications and Information security laws.
2. Course Main Objective • Students completing this course should be better able to develop and evaluate security governance strategies, policies, communication and controls

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understand information security governance, Risk, and Compliance.	K1
1.2	Understand the roles and responsibilities of CEO, CIO, CISO and other executives regarding security management. .	K1
1.3	Understand the managerial, technical and operation controls	K1
1...		
2	**Skills :**	
2.1	Know the Security strategy development techniques.	S2
2.2	Know Information security laws and acts.	S2
2.3		
3	**Values:**	
3.1		
3.2		

C. Course Content

No	List of Topics	Contact Hours
1	Information security governance	5
2	Developing Information security strategy	3
3	Security Management	6
4	Risk Management	6
5	Information system Policies	6
6	Managerial, technical and operation Controls	4
7	Security Communication	6
8	Security Standards	6
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Understand information security governance, Risk, and Compliance.	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
1.2	Understand the roles and responsibilities of CEO, CIO, CISO and other executives regarding security management.	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
1.3	Understand the managerial, technical and operation controls	Classroom Teaching	Quiz, Assignment, Mid Exam, Final Exam
2.0	**Skills**		
2.1	Know the Security strategy development techniques.	Classroom Teaching	Assignment, Final Exam, Case Studies

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.2	Know Information security laws and acts.	Classroom Teaching	Assignment, Final Exam, Case Studies
…			
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	4, 8	10%
2	Mid Term Exam	6	20%
3	Assignment	3, 5, 9	10%
4	Case Studies	2,5, 8	
5	Final Exam	12	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

- Available for a minimum of 4 hours per week/course, as communicated to the students.
- Student also contacts through social networking websites / D2L/ Email for advice and consultations

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	1. Information Security Governance Simplified: From the Boardroom to the Keyboard 1st Edition by Todd Fitzgerald, 2012, ISBN-13: 978-1439811634.
Essential References Materials	1. 1) Information Security Governance: A Practical Development and Implementation Approach, by Krag 2. Brotby, ISBN: 978-0-470-13118-3. 3. 2) Security in Computing, 4th Edition by Charles P. Pfleeger 4. 3) Information Security: Principles and Practice, Second Edition, Wiley-Inter Science, 2011, by Mark Stamp
Electronic Materials	
Other Learning Materials	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom, PC Laboratory
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Learning Outcomes Feedback	Students	Survey
Final Exam evaluation	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Penetration Testing and Vulnerability Analysis
Course Code:	**IT 466**
Program:	**BS IT**
Department:	**Information Technology**
College:	**College of Computer and Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support **5**

F. Learning Resources and Facilities **5**

1.Learning Resources 5

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **6**

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☐ Elective ☐
3. Level/year at which this course is offered: Level 10
4. Pre-requisites for this course (if any)**: IT461**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	11
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description This course will focus on advanced security techniques often referred to as vulnerability analysis or network penetration testing (pen testing). Students will learn the methods, techniques, and tools to test the security of computer networks, infrastructure and applications. Topics include vulnerability analysis, methodologies, Ethical & Legal Issues, Passive & active Scanning Techniques, Malware & Viruses, Malicious Web-Based Code, Windows Hacking Techniques, Specific Attacks on Websites, SQL Script Injection, Vulnerability Scanning, Linux Hacking
2. Course Main Objective To make the students to 1. Understand what pen testing is and how it's used 2. Understand Windows vulnerabilities 3. Recognize SQL injection and cross-site scripting attacks

4. Identify Linux vulnerabilities and password cracks
5. Apply general hacking technique and social engineering

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	SO(4) Recognize Penetration testing professional responsibilities and make vulnerability scanning reports in computing practice based on legal and ethical principles	K1
1.2		
1.3		
1...		
2	**Skills :**	
2.1	SO(6)Identify and analyze the tools to scan and analyze malware and vulnerability in computers and network systems	S1
2.2		
2.3		
2...		
3	**Values:**	
3.1	SO(1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions	
3.2	SO(3) Communicate effectively in a variety of professional contexts	
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction and Pen Test Methodologies, Vulnerability scans, Penetration tests, Ethical and legal issues, fraud and related activities, important certifications	6
2	Vulnerability Analysis, Assessment & Methodologies	4
3	Passive & Active Scanning Tools & Techniques Netcraft, Shodan, Social media, Google searching, port scanning, wireshark	6
4	Malware & Malicious Web-Based Code Type of viruses, Trojan horses, Rootkit, Simple script for virus creation	6
5	Windows Hacking Techniques & tools Boot process, windows logs, registry, windows password hashing	4
6	Web hacking Specific Attacks on Websites, SQL script injection	6
7	Vulnerability Scanning & tools CVE, NIST, Packet capture, tcpdump, network scanners, Aircrack	4
8	Linux Hacking, Shell commands, Linux firewall Linux passwords	4
9	Linux hacking tricks, Boot hack and backspace hack	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO-5 Apply general hacking technique and social engineering	Lecture	Direct-Quiz, Mid Term Exam, Final Exam,
2.0	**Skills**		
2.1	Identify Linux vulnerabilities and password cracks	Lecture, lab demo	Lab Assignments, CLO Survey
3.0	**Values**		
3.1	CLO-1 Understand what pen testing is and how it's used	Lecture	Quiz, Mid Term Exam, Practical exam
3.2	CLO-2. Recognize SQL injection and cross-site scripting attacks	Lecture, Tool demo	Assignment, Practical exam
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Test 1	Week 3	10%
2	Mid Term	Week 8	20%
3	Test 2	Week 9	10%
5	Practical exam	Week 10	20%
6	Final Exam	Week 11	40%
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Every faculty will be assigned 10 students in the corresponding department for academic advising. Students can meet the faculty during advising hours or whenever the faculty is in the office.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	1. Penetration Testing Fundamentals: A Hands-On Guide to Reliable Security Audits, by William EasttomPublisher: Pearson IT 2. Penetration testing A Hands-On Introduction to Hacking San Francisco by Georgia Weidman

	3. Hands-On Penetration Testing on Windows: Unleash Kali Linux, PowerShell, and Windows debugging tools for security testing and analysis Paperback (July 30, 2018) by Phil Bramwel Packt Publishing
Essential References Materials	
Electronic Materials	1. https://lira.epac.to/DOCS-TECH/Hacking/Practical%20Malware%20Analysis.pdf 2. https://github.com/mikesiko/PracticalMalwareAnalysis-Labs
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	LCD Projector, Digital Forensics Lab
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test-1, Test-2Final Examination, Mid term exam, and Practical exam	Faculty	Direct
Survey	Students	Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**Cloud Architecture**
Course Code:	**IT 476**
Program:	**B.Sc. Information Technology**
Department:	**Information Technology**
College:	**College of Computer and Information Science**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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C. Course Content **4**

D. Teaching and Assessment **6**

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods 6

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E. Student Academic Counseling and Support **7**

F. Learning Resources and Facilities **7**

1.Learning Resources 7

2. Facilities Required 7

G. Course Quality Evaluation **8**

H. Specification Approval Data **8**

• A. Course Identification

1. Credit hours: 4 (2,2,0)
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☐ Elective ☑
3. Level/year at which this course is offered: Level 10
4. Pre-requisites for this course (if any)**: IT 417- cloud computing foundations**
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	55	**100%**
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	44
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	55

• B. Course Objectives and Learning Outcomes

1. Course Description

This course 'Cloud Architecting' covers the fundamentals of building IT infrastructure on AWS. The course is designed to teach students solutions for cloud architects and how to optimize their use of the AWS Cloud by understanding AWS services and how they fit into cloud-based solutions. Although architectural solutions can differ depending on the industry, type of application, and size of the business, this course emphasizes best practices for the AWS Cloud that apply to all of them. It also recommends various design patterns to help you think through the process of architecting optimal IT solutions on AWS. Finally, this course provides opportunities for students to build a variety of infrastructures through a guided, hands-on approach.

2. Course Main Objective

students should be able to

1. Make architectural decisions based on cloud architectural principles and best practices
2. Use cloud services to make their infrastructure scalable, reliable, and highly available
3. Use cloud managed services to enable greater flexibility and resiliency in an infrastructure
4. Indicate how to increase the performance efficiency and reduce costs of infrastructures built on AWS
5. Use the cloud Well-Architected Framework to improve architectures that use cloud/AWS solutions.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO1: Make architectural decisions based on cloud architectural principles and best practices	K1
1.2	CLO4: Indicate how to increase the performance efficiency and reduce costs of infrastructures built on AWS	K1
2	**Skills :**	
2.1	CLO2: Use cloud services to make their infrastructure scalable, reliable, and highly available	S1
2.2	CLO3: Use cloud managed services to enable greater flexibility and resiliency in an infrastructure	S1
2.3	CLO5: Use the cloud Well-Architected Framework to improve architectures that use cloud/AWS solutions.	S1
2…		
3	**Values:**	
3.1		
3.2		
3.3		
3…		

- **C. Course Content**

No	List of Topics	Contact Hours
1	**Introducing Cloud Architecting** • What is cloud architecting • Well-Architected Framework • Best practices for building solutions on cloud	4

	• global infrastructure	
2	**Adding a Storage Layer** • The simplest architecture • Storing data in cloud • Moving data to and from cloud Choosing Regions for your architecture	4
3	**Adding a Compute Layer** • Architectural need • Selecting instance type • Pricing options and considerations	8
4	**Adding a Database Layer** • Architectural need • Database layer considerations • Relational Database Database security controls	4
5	**Creating a Networking Environment** • Architectural need • Creating an networking environment • Connecting networking environment to the internet • Securing your cloud networking environment	4
6	**Connecting Networks** • Architectural need • Connecting to your remote network with Site-to-Site VPN • Connecting to your remote network with Direct Connect	8
7	**Securing User and Application Access** • Architectural need • Account users and Identity and Access Management (IAM) • Organizing users • Multiple accounts	4
8	**Implementing Elasticity, High Availability, and Monitoring** • Architectural need • Scaling your compute resources • Scaling your databases	4
9	**Automating Your Architecture** • Architectural need • Reasons to automate • Automating your infrastructure • Automating deployments	4
10	**Caching Content** • Architectural need	4

	• Overview of caching • Edge caching • Caching web sessions • Caching databases	
11	**Planning for Disaster** • Architectural need • Disaster planning strategies • Disaster recovery patterns	3
Total		55

• D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO1: Make architectural decisions based on cloud architectural principles and best practices	Classroom Teaching	Test1, Mid Exam, Final Exam, Assignment , Homework
1.2	CLO4: Indicate how to increase the performance efficiency and reduce costs of infrastructures	Classroom Teaching	Mid Exam, Final Exam, Assignment , Homework
2.0	**Skills**		
2.1	CLO2: Use cloud services to make their infrastructure scalable, reliable, and highly available	Classroom Teaching	Mid Exam, Final Exam, Assignment , Homework
2.2	CLO3: Use cloud managed services to enable greater flexibility and resiliency in an infrastructure	Classroom Teaching	Final Exam, Assignment
2.3	CLO5: Use the cloud Well-Architected Framework to improve architectures that use cloud solutions.	Classroom Teaching	Final Exam, Mini Project,
2.4			
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	In-class Tests (written test)	Week 4,	10%
2	Mid Term Exam (written test)	Week 6	20%
3	Mini Project	Week 10	10%
4	Labs , Exercises/Assignment	Every Week	20%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
5	Final Exam (written test)	Week 13	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

• E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Each student is assigned to an academic advisor for guidance and counselling

• F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• **Architecting Cloud Computing Solutions: Build cloud strategies that align technology and economics while effectively managing risk", 1st Edition, By Kevin L. Jackson Scott Goessling, 2018.**
Essential References Materials	• **AWS Certified Solutions Architect Study Guide" 2nd Edition, by Ben Piper, David Clinton. Latest version 2021.**
Electronic Materials	• Online **Online Course Notes available on D2L** • **Online reference materials available on SDL**
Other Learning Materials	Online AWS LABs

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Class Room. Lab.
Technology Resources (AV, data show, Smart Board, software, etc.)	Computer. or Laptop with Windows/Linux.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Projector and Smart Board.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Council
Reference No.	IT Meeting # (1443-1444)
Date	9/02/2022

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**Calculus 1**
Course Code:	**MH 113**
Program:	**Basic Science**
Department:	**Computer Science**
College:	**College of Computer and Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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E. Student Academic Counseling and Support **6**

F. Learning Resources and Facilities **6**

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2. Facilities Required 7

G. Course Quality Evaluation **7**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☒ Department ☐ Others ☐ **b.** Required ☒ Elective ☐
3. Level/year at which this course is offered: Level 1
4. Pre-requisites for this course (if any)**:** **N/A**
5. Co-requisites for this course (if any)**:** **N/A**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify) Exercises	11
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description

1) Limits and Continuity: The Concept of Limit, Computation of Limits, Continuity and its Consequences, Limits Involving Infinity, Asymptotes.

2) The Derivative: Tangent Lines and Velocity, The Derivative, Computation of Derivatives: The Power Rule, Higher Order Derivatives, The Product and Quotient Rules, Chain rule. Derivatives of trigonometric and inverse trigonometric functions. Exponential, logarithmic. Implicit differentiation and inverse function's derivative. Derivatives of high order.

3) Applications of the Derivative: Linear approximation. Hospital's Rule and undetermined forms. Absolute and local extreme, critical points, tests for local extreme, concavity and inflection points, and applications. Rolle's Theorem and the Mean Value Theorem. Curve sketching using calculus. Optimization problems.

4) Integrals: Anti-derivatives, Indefinite Integral; Integration by Substitution; Integration by Parts; Riemann sums; The Definite Integral; Area under curves; The Fundamental Theorems of Calculus; The Mean Value Theorem of Integration.

2. Course Main Objective

a) This course aims at giving student knowledge in fields:
b) Give the intuitive knowledge of limits and continuity of a function.
c) Study the fundamental concepts of differential calculus.
d) Study the applications of derivatives to solve a variety of problems.
e) Study the fundamental concepts of integral calculus
f) Develop students' skills in problem solving.
g) Pursue the later courses of the mathematics

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	CLO-1:Find a limit (numerically, graphically and analytically).	S5
2.2	CLO-4:Find and interpret the integrals of elementary functions.	S5
2.3	CLO-2:Calculate derivatives of complicated functions.	S5
2.4	CLO-5:Pursue later courses in calculus.	S5
2.5	CLO-3:Apply differentiation to problems such as related rates, graphing and optimization.	S5
3	**Values:**	
3.1		

CLOs		Aligned PLOs
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	The Concept of Limit: definition concept, some question, Continuity and its Consequences: definition concept, some question,	4
2	Asymptotes Definition working rules and some questions, Tangent lines & velocity, The Derivative definition, Computation of Derivatives: some example and basic formula, Power rule	4
3	higher order derivates. The Product and Quotient Rules,	4
4	Chain rule for finding derivatives of composite functions, Derivatives of trigonometric functions.	4
5	By using first law of derivative, Derivatives of Exponential, logarithmic, and hyperbolic functions, Derivatives of hyperbolic functions continue	4
6	Derivatives Implicit differentiation, Inverse functions and their derivative,	4
7	Derivatives Inverse functions continues, Derivatives of high order involving inverse functions	4
8	**L'** Hospital's Rule and undetermined forms, Linear approximation Applications of the Derivative**:** Absolute and local extreme, critical points, Tests for local extreme, concavity and inflection points, and applications,	4
9	Rolle's Theorem: Definition, Mean Value Theorem: Definition & Example, Curve sketching using calculus, Curves of binomial, algebraic, trigonometric functions etc, simple method,	4
10	Integrals: Anti-derivatives definition & result of basic functions, Indefinite Integral, Integration by Substitution: Working method and questions, Integration by Parts : Working rules and questions	4
11	Riemann sums; Definition and process of finding Integral, Definite Integral Continue some questions, Area of curves: Application of integral, The Mean Value Theorem of Integration	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	CLO-1:Find a limit (numerically, graphically and analytically).	Classroom Method	Quiz, Midterm Final Assignments

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.2	CLO-4:Find and interpret the integrals of elementary functions.	Classroom Method	Quiz, Final Assignments
…	CLO-2:Calculate derivatives of complicated functions.	Classroom Method	Quiz, Midterm Final Assignments
	CLO-5:Pursue later courses in calculus.	Classroom Method	Quiz, Midterm Final Assignments
	CLO-3:Apply differentiation to problems such as related rates, graphing and optimization.	Classroom Method	Quiz, Final Assignments
	CLO-1:Find a limit (numerically, graphically and analytically).	Classroom Method	Quiz, Midterm Final Assignments
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
	Attendance and Class participation	Week 1 to 11	5%
1	Quiz 1	Week 3	7.5%
2	Assignment 1	Week 3	10%
3	Midterm	Week 6	20%
4	Assignment 2	Week 7	10%
5	Quiz 2	Week 9	7.5%
6	Final Exam	Week 12	%40
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each group of students is assigned to a member of staff who will be available for help and academic guidance office hours at specific hours on daily basis.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Robert Smith, Roland Minton "Calculus, Early Transcendental Functions" McGraw-Hill, 4 edition (2012). ISBN 978–0–07–338311–8
Essential References Materials	Edwards, H.C. and Penney, D.E., 2013. Calculus, Early Transcendentals: Pearson New International Edition PDF eBook. Pearson Higher Ed. Calculus, L. Hostetler & Edwards, Cengage Learning, 10th (2013). Stewart, J., Clegg, D.K. and Watson, S., 2020. Calculus: early transcendentals. Cengage Learning.
Electronic Materials	**a)** tutorial.math.lamar.edu/Classes/CalcI/CalcI.aspx . **b)** mathforum.org/calculus/calculus.units.html **c)** https://apstudent.collegeboard.org/apcourse/ap-calculus…/calculator-poli.
Other Learning Materials	Class Notes

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Discrete Mathematics
Course Code:	MH 121
Program:	CS/IT
Department:	Basic Sciences and Humanities
College:	College of Computer and Information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities 6

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2. Facilities Required 7

G. Course Quality Evaluation 7

H. Specification Approval Data 7

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level 2
4. Pre-requisites for this course (if any)**: None**
5. Co-requisites for this course (if any)**: None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	**100%**
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	**33**
2	**Laboratory/Studio**	
3	**Tutorial**	**11**
4	**Others** (specify)	
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description

The course presents a set of mathematical facts and how to apply them for logical and mathematical thinking. Topics include Logic and set theory, Proof Strategy, Mathematical and Structural Induction, Types of relations and set partition, Partial Ordering, Integers and Algorithms, Complexity of Algorithms, Congruencies, Representation of Integers, Principles of Counting, Permutations, Combinations and Graph Theory.

2. Course Main Objective

1. Students will be able to explain and apply the basic methods of discrete (non-contiguous) mathematics in Computer Science.
2. Use logical notation to define and reason about fundamental mathematical concepts such as sets, relations, functions, and integers.
3. Evaluate elementary mathematical arguments and identify fallacious reasoning (not just fallacious conclusions).
4. Synthesize induction hypotheses and simple induction proofs.

5. Prove elementary properties of modular arithmetic and explain their applications in Computer Science, for example, in cryptography and hashing algorithms.
6. Explain and apply the knowledge of graph theory required for the Computer Science.
7. Derive closed-form and asymptotic expressions from series and recurrences for growth rates of processes.
8. Calculate numbers of possible outcomes of elementary combinatorial processes such as permutations and combinations. Calculate probabilities and discrete distributions for simple combinatorial processes; calculate expectations.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1… .		
2	**Skills :**	
2.1	CLO 1: Evaluate logical expressions and perform the basic operations on sets.	S5
2.2	CLO 2: Use the direct method, the contrapositive method, the contradiction method, and the mathematical induction to write a rigorous mathematical proof.	S5
2.3	CLO 3: Apply logical reasoning to solve a variety of problems.	S5
2.4	CLO 4: Apply a wide range of principles of discrete mathematics, such as problem solving, good thinking, choice of algorithm, and mathematical proofs.	S5
2.5	CLO 5: Interact with life problems using different methods of thinking and problem solving	S5
3	**Values:**	
3.1		
3.2		
3…		

C. Course Content

No	List of Topics	Contact Hours
1	Simple and compound statements, Logical connectives, Truth tables, ,Basic logic laws, Applications of Logic	3+1
2	.Operations on sets, Basic laws of set theory, Cartesian product of sets	3+1
3	Proof Strategy, Direct Method, the Contrapositive Method, the ,Contradiction Method	3+1
4	Mathematical Induction and Structural Induction	3+1
5	Basic definitions on relations, Binary relations and their types	3+1
6	Equivalence relation and set partition, Partial Ordering	3+1

7	Further Applications and examples Equivalence relation and set partition, Partial Ordering	3+1
8	Algorithms, Examples of Algorithms, Complexity of Algorithms, .Recursive Definitions, Recursive Algorithms	3+1
9	Integers and Division, The Division Algorithm, Integers Algorithms, .The Euclidean Algorithm, Congruencies, Representation of Integers, Applications	3+1
10	Principles of Counting: The Basics of Counting, The Pigeonhole Principle	3+1
11	Introduction to Graphs, Representation of Graphs. Paths and Cycles, Euler and Hamilton Paths Shortest-Path Algorithms,	3+1
Total		44

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
1..			
2.0	**Skills**		
2.1	CLO 1: Evaluate logical expressions and perform the basic operations on sets.	Classroom Teaching	Quiz, Home assignment, Mid-Exam, Final Exam
2.2	CLO 2: Use the direct method, the contrapositive method, the contradiction method, and the mathematical induction to write a rigorous mathematical proof.	Classroom Teaching	Quiz, Home assignment, Mid-Exam, Final Exam
2.3	CLO 3: Apply logical reasoning to solve a variety of problems.	Classroom Teaching	Quiz, Home assignment, Mid-Exam, Final Exam
2.4	CLO 4: Apply a wide range of principles of discrete mathematics, such as problem solving, good thinking, choice of algorithm, and mathematical proofs.	Classroom Teaching	Quiz, Home assignment, Mid-Exam, Final Exam
2.5	CLO 5: Interact with life problems using different methods of thinking and problem solving	Classroom Teaching	Quiz, Home assignment, Mid - Exam, Final Exam
3.0	**Values**		
3.1			

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.2			
3…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Attendance and Class participation	Week 1 to 15	5%
2	Quizzes	Week 4, Week 12	15%
3	Assignments/Exercises	Week 4, 8, 12, 15	20%
4	Mid Term Exam	Week 8	20%
5	Final Exam	Week 16	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- Each student is allotted to an academic advisor for guidance and counseling.
- Available for a minimum of 2 hours per week/course, as communicated to the students.
- The student also contacts through social networking websites / Blackboard/ Email for advice and consultations

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Discrete Mathematics and Its Applications, K. Rosen, 7th Edition McGraw-Hill, ISBN 978-0-07-338309-5, 2012.
Essential References Materials	Journey into Discrete Mathematics (AMS/MAA Textbooks) by Owen D. Byer (Author), Deirdre L. Smeltzer (Author), Kenneth L. Wantz (Author), American Mathematical Society, ISBN-10: 1470446960, ISBN-13: 978-1470446963, 2018
Electronic Materials	https://ocw.vu.edu.pk/Videos.aspx?cat=Mathematics&course=MTH202 https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-042j-mathematics-for-computer-science-fall-2010/video-lectures/
Other Learning Materials	Blackboard, Class notes

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

Course Specifications

Course Title:	**Calculus-II**
Course Code:	**MH 132**
Program:	**Basic Science**
Department:	**Basic Science**
College:	**College of Computer and Information Sciences**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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C. Course Content **4**

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E. Student Academic Counseling and Support **6**

F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **7**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours: 3(4,0,1)
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☐ Elective ☐
3. Level/year at which this course is offered: **Level 4**
4. Pre-requisites for this course (if any)**: MATH 112: Calculus 1**
5. Co-requisites for this course (if any)**: None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	55	100%
2	Blended		
3	E-learning		
4	Correspondence		
5	Other		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	44
2	Laboratory/Studio	
3	Tutorial	11
4	Others (specify)	
	Total	55
Other Learning Hours*		
1	Study	
2	Assignments	
3	Library	
4	Projects/Research Essays/Theses	
5	Others (specify)	
	Total	

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

Catalog Description: This course includes the following topics:

1) Integration Techniques: Review of Integration by Substitution and Integration by Parts, Integration of Rational Functions Using Partial Fractions, Trigonometric Techniques of Integration, and Integrals involving logarithmic, exponential, and hyperbolic functions, Improper Integrals.

2) Infinite series: Sequences and limit of a sequence. Infinite series of constant terms, convergence tests, alternating series and absolute convergence. Power series, the ratio test, and radius of convergence; Taylor and McLaurin series.

3) Vectors and Geometry of Space: Vectors in Space, Dot Product, Cross Product, Lines and Planes in Space, Cylindrical and Spherical Coordinates.

4) Parametric Equations and Polar Coordinates: Plane Curves and Parametric Equations, Calculus and Parametric Equations, Polar Coordinates, Calculus and Polar Coordinates.

5) Functions of several variables and Partial Differentiation: Functions of several variables, Partial derivatives, Total derivative, and Chain rule.

6) Multiple Integrals: Double and Triple Integrals in Cartesian Coordinates; Areas and Volumes, Double Integrals in Polar Coordinates; Triple Integrals in Cylindrical and Spherical Coordinates.

2. Course Main Objective

This course aims at giving student knowledge in fields:

1. Manipulate the integration of complicated functions and evaluate double and triple integrals.
2. Use various tests to determine series convergence and successfully solve problems involving infinite series.
3. Use polar coordinates and their applications in the parametric equations.
4. Differentiate functions of two and three variables.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
2	**Skills :**	
3	**Competence:**	
3.1	CLO (1) Manipulate the integration of complicated functions and evaluate double and triple integrals	C2
3.2	CLO (2) Use various tests to determine series convergence and successfully solve problems involving infinite series.	C2
3.3	CLO (3) Use polar coordinates and their applications in the parametric equations.	C2
3.4	CLO (4) Differentiate functions of two and three variables.	C2

C. Course Content

No	List of Topics	Contact Hours

1	Review of Integration by Substitution and Integration by Parts, Integration of Rational Functions Using Partial Fractions,	4
2	Trigonometric Techniques of Integration, Integrals involving logarithmic, exponential, and hyperbolic functions, Improper Integrals.	4
3	Sequences and limit of a sequence. Infinite series of constant terms, convergence tests, alternating series and absolute convergence.	4
4	Power series, the ratio test, and radius of convergence; Taylor and MacLaurin series.	4
5	Vectors in Space, Dot Product, Cross Product,	4
6	Lines and Planes in Space Cylindrical and Spherical Coordinates.	4
7	Plane Curves and Parametric Equations, Calculus and Parametric Equations	4
8	Polar ordinates, Calculus and Polar Coordinates.	4
9	Functions of several variables, Partial derivatives, Total derivative, Chain rule.	4
10	Double and Triple Integrals in Cartesian Coordinates; Areas and Volumes, Double Integrals in Polar Coordinates;	4
11	Triple Integrals in Cylindrical and Spherical Coordinates.	4
Total		**44**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
2.0	**Skills**		
3.0	**Competence**		
3.1	CLO (1) Manipulate the integration of complicated functions and evaluate double and triple integrals	Classroom Teaching	Quiz, Mid- Exam, Final Exam
3.2	CLO (2) Use various tests to determine series convergence and successfully solve problems involving infinite series.	Classroom Teaching	Quiz, Mid- Exam, Final Exam
3.3	CLO (3) Use polar coordinates and their applications in the parametric equations.	Classroom Teaching	Quiz, Mid- Exam, Final Exam
3.4	CLO (4) Differentiate functions of two and three variables.	Classroom Teaching	Quiz, Mid- Exam, Final Exam

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	Week 3	10%
2	Assignment 1	Week 3	10%
3	Midterm	Week 6	20%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
4	Assignment 2	Week 7	10%
5	Quiz 2	Week 9	10%
	Final Exam	Week 12	%40

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**Robert Smith, Roland Minton "Calculus, Early Transcendental Functions" McGraw-Hill, 4 edition (2012). ISBN 978–0–07–338311–8**
Essential References Materials	
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

G. Course Quality Evaluation

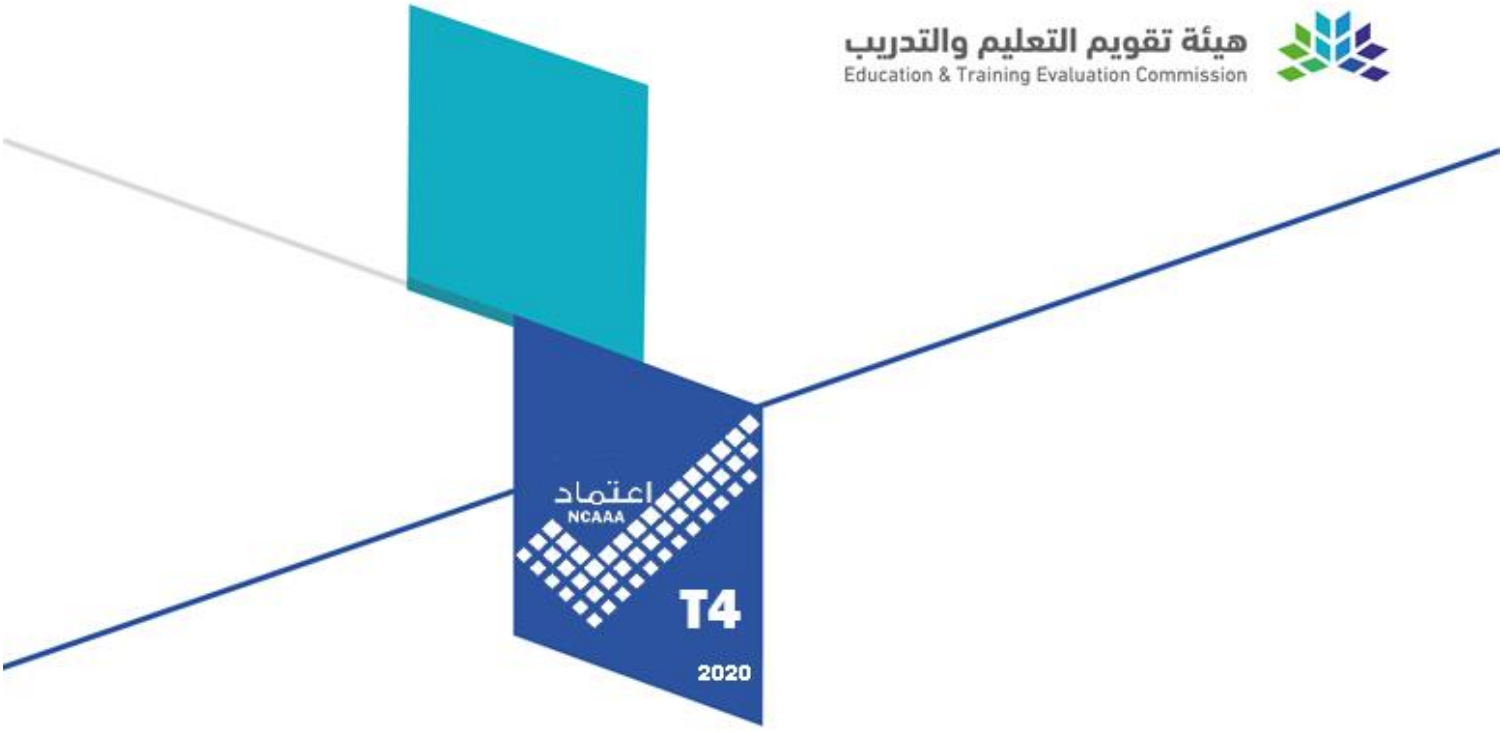
Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *



Course Specifications

Course Title:	Linear Algebra	
Course Code:	MATH 222	
Program:	Computer Science	
Department:	Basic Sciences and Humanities	
College:	College of Computer and Information Sciences	
Institution:	Majmaah University	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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1.Learning Resources 6

2. Facilities Required 7

G. Course Quality Evaluation **7**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level 5
4. Pre-requisites for this course (if any)**:** N/A
5. Co-requisites for this course (if any)**: N/A**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

Catalog Description: This course includes the following topics:
1) Matrices and Gauss Elimination: Elementary row operations, Transpose of a matrix, Inverse of
a square matrix, Linear equation systems and Gauss eliminations.
2) Determinants: Determinants and their properties, classical adjoint matrix; Cramer's rule.
3) Vector spaces: Basic definitions, subspaces, linear dependence and independence, bases and
dimensions, Rank of a Matrix.
4) Linear transformations: Basic definitions, the matrix of a transform, Kernel and Range of a linear transformation, Matrices of linear transformations, Coordinates and change of basis.
5) Eigenvalues and Eigenvectors: Characteristic polynomial, diagonalization of matrices, Applications involving Powers of matrices.

2. Course Main Objective

This course aims at giving student knowledge in fields:
1) Introduce students to the subject of linear algebra which is essential for subsequent courses in mathematics and computer science.

2) Let students be familiar with basics of matrices and determinants and their applications to solve systems of linear equations.
3) Let students be familiar with basics of vector spaces and linear transformations.
4) Let students be familiar with the notions of eigenvalues and eigenvectors with some of their applications.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1...		
2	**Skills :**	
2.1	CLO1: Solve systems of linear equations using Gauss Elimination, Cramer's rule, and inverse matrix method.	S5
2.2	CLO2- Understand the general concepts of vector spaces, subspaces, linear dependence and independence, bases, and linear transformations.	S5
2.3	CLO3- Calculate the eigenvalues and eigenvectors of squared matrices.	S5
2.4	CLO4- Solve important problems applying methods of linear algebra.	S5
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to matrices, Elementary row operations	3
2	Inverse of a square matrix, Transpose of a matrix.	2
3	Linear equation systems and Gauss eliminations	4
4	Determinants and their properties, Determinants	4
5	classical adjoint matrix	2
6	Cramer's rule.	3
7	Vector spaces: Basic definitions, subspaces	3
8	Linear dependence and independence	3
9	Basis and dimensions, Rank of a Matrix	3
10	Linear transformations: Basic definitions, The matrix of a transform	3
11	Kernel and Range of a linear transformation	2
12	Matrices of linear transformations, Coordinates and change of basis	4
13	Characteristic polynomial, Eigenvalues and Eigenvectors	3
14	Diagonalization of matrices, Applications involving Powers of matrices	2
15	Revision	3
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
…			
2.0	**Skills**		
2.1	CLO-1 Solve systems of linear equations using Gauss Elimination, Cramer's rule, and inverse matrix method	Classroom Teaching	Quizzes Mid Exam Assignments Class Test Final Exam
2.2	CLO-2 Solve first-order differential equations Understand the general concepts of vector spaces, subspaces, linear dependence and independence, bases, and linear transformations	Classroom Teaching	Quizzes Mid Exam Assignments Class Test Final Exam
2.3	CLO-3 Calculate the eigenvalues and eigenvectors of squared matrices	Classroom Teaching	Quizzes Mid Exam Assignments Class Test Final Exam
2.4	CLO-4 Solve important problems applying methods of linear algebra..	Classroom Teaching	Quizzes Mid Exam Assignments Class Test

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
			Final Exam
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	3,7,11	20%
2	Assignments	3,6,9,11	15%
3	Mid Term Exam	8	20%
4	Class Participation	All weeks	5%
5	Final Exam	12	40%
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for the availability of faculty and teaching staff for individual student consultations and academic advice :

- Each student is allotted to an academic advisor for guidance and counseling.
- Available for a minimum of 2 hours per week/course, as communicated to the students.
- Student also contacts through social networking websites / Blackboard/ Email for advice and consultations

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Gareth Williams “Linear Algebra With Applications” Jones and Bartlett, 8th Edition, (2014). **ISBN-13:** 978-1284120097 David C. Lay “Linear Algebra, and Its Applications”, Pearson, 5th Edition (2016) D. Poole, “Linear Algebra: A Modern Introduction”, Brooks Cole; 3rd ed. (2011).
Essential References Materials	
Electronic Materials	

Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Answer Scripts Verification	Peer faculty members	Review
Course Feedback	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Dr. Ahmed Farghaly
Reference No.	
Date	18 September fall 2022

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Physics 1
Course Code:	PHY 123
Program:	Basic Science
Department:	Basic Science
College:	Computer and information Sciences
Institution:	Majmaah University

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities **6**

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation **6**

H. Specification Approval Data **7**

A. Course Identification

1. Credit hours: 3(3,3,1)
2. Course type **a.** University ☐ College ☒ Department ☐ Others ☐ **b.** Required ☒ Elective ☐
3. Level/year at which this course is offered: Level 2
4. Pre-requisites for this course (if any)**:** Nil
5. Co-requisites for this course (if any)**: Nil**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	77	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	33
3	**Tutorial**	11
4	**Others** (specify)	
	Total	77

B. Course Objectives and Learning Outcomes

1. Course Description

This course is introducing the following topics: Introduction, Measurement, Estimating, The Motion in one and two dimensions. Vectors, Newton's laws of motion, Circular motion, Gravitation, work and energy, the linear momentum and collisions, Rotational motion. Static equilibrium, condition of equilibrium, elasticity, Hooke's law, Young's modulus, stress and strain, shear stress. Simple Harmonic Motion.

2. Course Main Objective

- Provides sensible preparation for areas of engineering, including computer science.
- Provides a broad foundation in basic principles of computer science and engineering.
- The program has a strong emphasis on mechanics and its application.
- Able to interpret physical problems into mathematical form.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1		
1.2		
1.3		
1.4		
2	**Skills :**	
2.1	CLO1-Gain knowledge of the basic concepts and principles of Physics, which is relevant to their further studies.	S5
2.2	CLO2- Student can understand the concepts and principles of mechanics through lectures and assessment tools.	S5
2.3	CLO3- Student can able to analyse the physical problem and learn to express mathematical equations.	S5
2.4	CLO4- Able to apply basic principles of Physics in solving problems in a structured process.	S5
3	**Values:**	
3.1		
3.2		
3.3		
3.4		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction, Measurement, Estimating	3
2	Vectors	3
3	Motion in One Dimension	3
4	Motion In Two Dimension	3
5	Newton's laws of motion	3
6	Circular Motion	3
7	Gravitation	3
8	Work and energy	3
9	linear momentum and collisions	3
10	Rotational motion	3
11	Static Equilibrium and elasticity, SHM	3
Total		33

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1			
1.2			
1.3			
1.4			
2.0	**Skills**		
2.1	CLO1-Gain knowledge of the basic concepts and principles of Physics, which is relevant to their further studies.	Classroom Teaching, Laboratory	Quiz, Mid Exam, Lab exam, Final Exam
2.2	CLO2- Student can understand the concepts and principles of mechanics through lectures and assessment tools.	Classroom Teaching	Assignment, Mid Exam, Final Exam
2.3	CLO3- Student can able to analyze the physical problem and learn to express mathematical equations.	Classroom Teaching	Assignment, Mid Exam, Final Exam
2.4	CLO4- Able to apply basic principles of Physics in solving problems in a structured process.	Classroom Teaching	Quiz, Mid Exam, Final Exam
3.0	**Values**		
3.1			
3.2			
3.3			
3.4			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	**Assignments**	During the term	10%
2	**Midterm**	During the term	20%
3	**Quiz**	6th week	10%
4	**LAB CONDUCTION**	10th week	**20%**
5	**Final Exam**	**12th week**	40%
6	**Total**		**100%**

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Students can meet the faculty during advising hours or whenever the faculty is in the office.

Office Hours: 4 Hours/Week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**TextBook:** 1.Physics: Principles with Applications, Global Edition, Douglas C. Giancoli, Pearson New International Edition, 2016. 2. Physics for Scientists and Engineers with Modern Physics by Jewett and Serway, 9thEdition, Thomson Brooks/Cole 2013.
Essential References Materials	a) Richard P. Feynman, Robert B. Leighton and Matthew Sands, the Feynman Lectures on Physics, 1st Edition (New Millennium Edition). b) Engineering Physics, Gaur and Gupta, Chand Publishers
Electronic Materials	*www.engr.wisc.edu/ep/* *engphys.mcmaster.ca* *www.engphys.ubc.ca/*
Other Learning Materials	• **Computer-based experiments.** • **Professional standards (Models)** **Robotic application**

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom and lab are required as per the recommendation of University.
Technology Resources (AV, data show, Smart Board, software, etc.)	**Enough facilities are present (Such as projector, Video conferencing machine)**
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	**Enough laboratory equipment required**

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**Probability and Statistics**
Course Code:	**STAT 133**
Program:	**Computer Science/ Information Technology**
Department:	**Computer Science**
College:	**College of Computer and Information Science**
Institution:	**Majmaah University**

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

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F. Learning Resources and Facilities 6

1.Learning Resources 6

2. Facilities Required 6

G. Course Quality Evaluation 6

H. Specification Approval Data 7

A. Course Identification

1. Credit hours:	**3(3, 0, 1)**
2. Course type	
a.	University ☐ College ☑ Department ☐ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Level 2/ Year 2**
4. Pre-requisites for this course (if any)**:**	**MH 113**
5. Co-requisites for this course (if any)**:**	**N/A**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	60	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	
3	**Tutorial**	11
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

Upon successful completion of this course, students will be familiar with basic rules of probability and will be able to use them in modeling uncertainty in obtaining and recording data. They will be able to utilize graphical and numerical summaries of data in understanding data generating processes. They will understand the logic of statistical inference and will be able to apply common inferential procedures. Students will be exposed to the computational aspects of statistics using calculators, spreadsheet programs or special purpose data analysis packages.

2. Course Main Objective

Understanding and applying probability rules, independent random events.
2) Understanding and applying random variables and their probability distribution.
3) Understanding and applying common discrete probability distributions and their

الرقم: ٦٦/١٨٨٣١ التاريخ: ١٤٤٤/٠٥/١١ عدد المرفقات: *

relationships.
4) Understanding and applying common continuous probability distributions and their applications.
5) Understanding and applying sampling distribution of some sample statistics.
6) Understanding and applying principles of estimation, estimation of some population parameters.
7) Understanding and applying the principles of estimation of simple linear regressions.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO-1: Apply probability rules and independent random events	
1.2	CLO-2: Use random variables and their probability distribution	
1.3	CLO-3: Use discrete probability distributions and their relationships	
1.4	CLO4: Use continuous probability distributions and their applications	
1.5	CLO5: Apply sampling distribution of sample statistics	
1.6	CLO-6: Understand the principles of estimation and estimation of population parameters	
1.7	CLO-7: Understand the principles of estimation of simple linear regressions	
2	**Skills :**	
2.1		
2.2		
2.3		
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to sample space, Random events, probability rules	3+1
2	Conditional Probability, Bayes' Rule	3+1
3	Random variables, Definitions of Discrete distribution, mean and variance of a random variable	3+1
4	Random variables, Definitions of continuous distribution, mean and variance of a random variable	3+1
5	Mean of linear combination of independent random variables	3+1
6	Variance of linear combination of independent random variables	3+1
7	Discrete distributions (Binomial, Poisson)	3+1
8	Continuous distributions (Uniform, Exponential, Normal)	3+1
9	Sampling distributions of sample statistics: t-distribution	3+1
10	The concept of estimation methods: Point estimation and Confidence interval estimation, The concept of estimation methods continued: Concepts of testing.	3+1
11	Concepts of simple linear correlation and linear regression	3+1
	Total	44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO-1: Apply probability rules and independent random events	Classroom	Quiz, Midterm Exam, Assignment, Final Exam
1.2	CLO-2: Use random variables and their probability distribution	Classroom	Quiz, Midterm Exam, Assignment, Final Exam
1.3	CLO-3: Use discrete probability distributions and their relationships	Classroom	Quiz, Midterm Exam, Assignment, Final Exam
1.4	CLO4: Use continuous probability distributions and their applications	Classroom	Quiz, Midterm Exam, Assignment, Final Exam
1.5	CLO5: Apply sampling distribution of sample statistics	Classroom	Quiz, Midterm Exam, Assignment, Final Exam
1.6	CLO-6: Understand the principles of estimation and estimation of population parameters	Classroom	Quiz, Midterm Exam, Assignment, Final Exam
1.7	CLO-7: Understand the principles of estimation of simple linear regressions	Classroom	Quiz, Midterm Exam, Assignment, Final Exam
2.0	**Skills**		
2.1			
2.2			
3.0	**Values**		
3.1			
3.2			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	3, 13	20%
2	Assignment	4, 9, 11, 14	20%
3	Midterm	8	20%
4	Final	16	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:
Every faculty will be assigned a number of students in the corresponding department for academic advising. Students can meet the faculty during advising hours or whenever the faculty is in the office during the specified office hours.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers and Keying E. Ye, "Probability and Statistics for Engineers and Scientists", Pearson; 10 editions. • Douglas C. Montgomery and, George C. "Applied Statistics and Probability for Engineers", Wiley; 6th edition (2013).
Essential References Materials	• Michael Baron, "Probability and statistics for computer engineers", CRC press, 2nd edition (2013)
Electronic Materials	https://oli.cmu.edu/courses/probability-statistics-open-free/ http://www.extension.harvard.edu/open-learning-initiative/sets-counting-probability
Other Learning Materials	Blackboard, Class notes

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Instructure	Direct
Course Survey in the middle of the semester and at the end	Students	Indirect

Evaluation Areas/Issues	Evaluators	Evaluation Methods
of the semester (Effectiveness of teaching and assessment)		
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	CS Council
Reference No.	45-1444/2
Date	2022