

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mobile Applications		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CSIT0401		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	4	Semester of Delivery	
Administering Department	CIS	College	CSIT
Module Leader	Zainab H. Majeed	e-mail	zainab.meejeed@uobasrah.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	M.Sc.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CSITCIS201	Semester	3
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents			
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أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<p>After successfully completing this course, students will be able to build mobile applications using a single codebase. They will learn the basics of the Flutter framework, including widgets, layouts, and navigation, as well as the Dart programming language used to develop Flutter apps. They will also explore Flutter's architecture, including the widget tree and state management, and learn how to create beautiful user interfaces using Flutter's widget system. Moreover, they will be able to manage data in Flutter app using local storage, cloud, and other data sources. Finally, students will learn how to integrate Flutter app with native platform features like camera, sensors, and location services.</p>
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> 1. Discovering the meaning of mobile apps and the five paradigms of these apps. 2. describe the main features of cross-platform applications. 3. Explain the architecture of cross-platform apps. 4. Write Dart programs for mobile applications on the Flutter framework; 5. Develop mobile applications for Android and iOS devices using the Flutter framework. 6. Use widgets for building a mobile app in Flutter. 7. be able to implement state, navigation and interaction in Flutter 8. Design usable and effective user interface for mobile devices. 9. Use local device space to save persisting data 10. Use real time services to manage users and application data for mobile applications. 11. integrate Flutter app with mobile native hardware like: camera and sensors. 12. Adding Google Maps and use location services.
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p><u>Introduction</u></p> <ul style="list-style-type: none"> • What are mobile applications • Mobile Apps vs. Desktop Apps • Mobile App Paradigms <p><u>Mobile apps platforms</u></p> <ul style="list-style-type: none"> • Android OS • IOS • Windows <p><u>Cross-platform architecture</u></p>

- Flutter architecture layers

Mobile programming

- Basic Dart Programming
- Control flow or decision making
- OOP Concepts -> Constructor. Object. Class. Inheritance. Abstraction. Encapsulation

- OOP Concepts
- Dart function, Dart Argument

Mobile programming

- Dart function, Dart Argument
- Dart Advance topic: Async, Method Chaining, Generics, Null Safety.

Flutter widgets

- Flutter Widgets tree
- Material App, Scaffold and his properties

Flutter visible widgets

- Text, TextField, Buttons, Icons, Forms... etc.

Flutter invisible widgets

- Row, Column, Stack, Container... etc.

Navigation and routing

- Create a new screen
- Navigate one Page to another page
- Data Passing

Saving persisting data

- Sqlite package
- Create new SQL database and tables
- SQL queries

Saving persisting data

- Create a real time database
- Integrate database to a Flutter app
- Dealing with real time queries

Design

- Mobile Devices Considerations
- Principles of Mobile Interface Design
- Mobile Design Patterns

	<p><u>Mobile internal service</u></p> <ul style="list-style-type: none"> • Using mobile camera • Include media (audio, video) to Flutter app • Some mobile sensors <p><u>Maps and locations</u></p> <ul style="list-style-type: none"> • Integrating Google maps to an application • Show user current location
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>The module is delivered through a series of lectures and labs. The lecture sessions discuss and explain to students the theoretical of how to build software systems that are run on mobile devices. Along with lectures, there are a number of labs which give students practical exercise to grow their skills in this area.</p> <p>Assessment is divided into four elements. First there are a number of quizzes that assess the student's competency in specific topics on a weekly basis.</p> <p>there is a midterm class test. There is then two a take home assignment. Finally, there is a lab project that tests the learners understanding of the theoretical and lab material.</p>
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	103	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	6 and 11	LO #3-#6, and #9- #11
	Assignments	2	10% (10)	8 and 13	LO #8, and #13
	Projects / Lab.	1	10% (10)	Continuous	All
	Report				
Summative assessment	Midterm Exam	2hr	10% (10)	9	LO #1 - #9
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction: what is mobile apps, mobile apps paradigms
Week 2	Mobile apps platforms: Android, IOS, windows...etc.
Week 3	Mobile framework: deep explanation of flutter framework
Week 4	Mobile programming: Dart language and flutter, basics of Dart
Week 5	Dart Advance topic: Async, Method Chaining, Generics, Null Safety... etc.
Week 6	Introduction to flutter widgets: Widget Tree and Flutter Inspector
Week 7	Visible Widgets: Text, TextField, , Button, Icons, Forms Etc
Week 8	Invisible Widgets: Container, Row, Column, stack
Week 9	Navigation and routing, Stateful widget and Stateless widget lifecycle
Week 10	Saving persisting data: Local Database in Flutter

Week 11	Saving persisting data: real time Database in Flutter
Week 12	Design: mobile user interface challenges and principles
Week 13	Mobile internal service: camera, audio player sensors
Week 14	Maps and show user current Location
Week 15	Review and Exam Preparation: review of key topics and concepts, exam practice and preparation
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Flutter IDEs and system installation requirements
Week 2	Lab 2: explanation of Flutter main windows
Week 3	Lab 3: explanation of Flutter files: Pubspec yml file and use of assets
Week 4	Lab 4: create and run first Flutter app “Hello world” on virtual and actual device
Week 5	Lab 5: exploring visible flutter widgets and including them in the program
Week 6	Lab 6: more training and examples of visible flutter widgets with their properties
Week 7	Lab 7: using invisible flutter widgets
Week 8	Lab 8: more of experiencing Flutter widgets and their properties
Week 9	Lab 9: navigation and routing, building more than one screen
Week 10	Lab 10: local database in Flutter: SQL
Week 11	Lab 11: continuing with database
Week 12	Lab 12: real time database in Flutter: Supabase
Week 13	Lab 13: using device camera to capture photos, include audios in the app
Week 14	Lab 14: add extra feature to the app such as: animations, splash screen, app icon
Week 15	Lab 15: reviewing of student lab projects

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Bailey T., Biessek A., and Wills T, Flutter for Beginners: An introductory guide to building cross-platform mobile applications with Flutter 2.5 and Dart, 2nd Edition, Packt Publishing, 2021, ISBN-10 : 1800565992, ISBN-13 : 978-1800565999	
Recommended Texts	Tyagi P., Pragmatic Flutter Building Cross-Platform Mobile Apps for Android, iOS, Web & Desktop, 1st Edition, CRC Press, 2021, ISBN: 9781000427103	
Websites	https://docs.flutter.dev/ https://www.tutorialspoint.com/flutter/index.htm https://www.udemy.com/course/mobile-app-development-with-flutter/	

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Data Science		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CSITCIS402		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	4	Semester of Delivery	
Administering Department	CIS	College	CSIT
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> 1. To develop problem solving skills and understanding of Data . 2. To understand data analysis and what it is . 3. This course deals with the basic concept of Data Analysis.. 4. This is the basic subject for all Data Analysis skills . 5. To understand data analysis applications . 6. To perform model evaluation for the data analysis models..
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> 1. Understand the data analysis and principles . 2. List the various terms associated with data analysis.. 3. Summarize what is meant by data analysis and . 4. Discuss the reaction and involvement of atoms in data analysis. 5. Describe data collection and data pre-processing . 6. Define exploratory data analysis . 7. Identify the basic model development . 8. Discuss the operations of model evaluation . 9. Discuss the various data analysis . 10. Explain the data security issues .
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<ol style="list-style-type: none"> 1. Introduction <ul style="list-style-type: none"> ➤ Introduction to Data Science ➤ Evolution of Data Science ➤ Data Science Roles ➤ Stages in a Data Science Project 2. Data Collection and Data Pre-Processing <ul style="list-style-type: none"> ➤ Data Collection Strategies ➤ Data Pre-Processing Overview ➤ Data Cleaning 3. Exploratory Data Analytics <ul style="list-style-type: none"> ➤ Descriptive Statistics ➤ Mean, Standard Deviation, Skewness and Kurtosis ➤ Box Plots ➤ ANOVA. 4. Model Development <ul style="list-style-type: none"> ➤ Simple and Multiple Regression ➤ Model Evaluation using Visualization ➤ Residual Plot 5. Model Evaluation <ul style="list-style-type: none"> ➤ Generalization Error ➤ Out-of-Sample Evaluation Metrics ➤ Cross Validation ➤ Overfitting

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	62	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	88	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	#1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	#3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	2	10% (10)	13	#5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	#1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction <ul style="list-style-type: none"> ➤ Introduction to Data Science ➤ Evolution of Data Science
Week 2	<ul style="list-style-type: none"> ➤ Stages in a Data Science Project ➤ Applications of Data Science in various fields ➤ Data Security Issues.
Week 3	Data Collection and Data Pre-Processing <ul style="list-style-type: none"> ➤ Data Collection Strategies ➤ Data Pre-Processing Overview
Week 4	<ul style="list-style-type: none"> ➤ Data Cleaning ➤ Data Integration and Transformation
Week 5	<ul style="list-style-type: none"> ➤ Data Reduction ➤ Data Discretization.
Week 6	Exploratory Data Analytics <ul style="list-style-type: none"> ➤ Descriptive Statistics ➤ Mean, Standard Deviation, Skewness and Kurtosis ➤ Box Plots
Week 7	<ul style="list-style-type: none"> ➤ Pivot Table ➤ Heat Map
Week 8	<ul style="list-style-type: none"> ➤ Correlation Statistics ➤ ANOVA.
Week 9	Model Development <ul style="list-style-type: none"> ➤ Simple and Multiple Regression ➤ Model Evaluation using Visualization
Week 10	<ul style="list-style-type: none"> ➤ Residual Plot ➤ Distribution Plot
Week 11	<ul style="list-style-type: none"> ➤ Polynomial Regression and Pipelines ➤ Evaluation ➤ Prediction and Decision Making.
Week 12	Model Evaluation <ul style="list-style-type: none"> ➤ Generalization Error ➤ Out-of-Sample Evaluation Metrics
Week 13	<ul style="list-style-type: none"> ➤ Cross Validation ➤ Overfitting
Week 14	<ul style="list-style-type: none"> ➤ Under Fitting and Model Selection ➤ Prediction by using Ridge Regression

Week 15	<ul style="list-style-type: none"> ➤ Testing ➤ Multiple Parameters by using Grid Search.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction Introduction to Data Science
Week 2	Stages in a Data Science Project Applications of Data Science in various fields
Week 3	Data Collection and Data Pre-Processing Data Collection Strategies Data Pre-Processing Overview
Week 4	Lab session exam
Week 5	Implementation Data Reduction
Week 6	Case study of Data Cleaning
Week 7	Implementation of Data Discretization
Week8	Discuss and implementation Exploratory Data Analytics Descriptive Statistics
Week9	Mean, Standard Deviation, Skewness and Kurtosis Box Plots
Week10	Case study of Correlation Statistics ANOVA.
Week11	Implementation the Model Development

	Simple and Multiple Regression
Week12	Model Evaluation Generalization Error
Week13	Testing Multiple Parameters by using Grid Search.

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	<ol style="list-style-type: none"> 1. Jojo Moolayil, "Smarter Decisions : The Intersection of IoT and Data Science", PACKT, 2016. 2. Cathy O'Neil and Rachel Schutt , "Doing Data Science", O'Reilly, 2015. 3. David Dietrich, Barry Heller, Beibei Yang, "Data Science and Big data Analytics", EMC 2013 	Yes
Recommended Texts	Raj, Pethuru, "Handbook of Research on Cloud Infrastructures for Big Data Analytics", IGI Global.	Yes
Websites		

Grading Scheme

مخطط الدرجات

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

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Data Mining		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CSITCIS403		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	4	Semester of Delivery	
Administering Department	CIS	College	CSIT
Module Leader	Name	e-mail	E-mail
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor	Name (if available)	e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	12/06/2023	Version Number	1.0

Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	CSITCIS203, CSITCIS206		Semester	3,4
Co-requisites module	None		Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<p>The student will be able to implement a data mining model to make predictions and classification. The student should be able to:</p> <ol style="list-style-type: none">1. Understand the fundamental of data mining processes and methodologies.2. Understand the process of getting interesting patterns in the datasets.3. Understand the nature of the dataset to make the proper model based on the required algorithm.4. Be able to understand the results of data mining algorithms, how to visualize them, and interpret them.5. Frame the problem statement and select the proper algorithm to solve it.
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none">1. Understand the underlying concept of data mining and algorithms.2. The ability to clear and handle different problems in the datasets such as noise, missing values, and null values.3. The ability to explore and apply different algorithms in classification and prediction such as decision tree, naïve bayes, association rules, and clustering.4. Understand the basic concept of deep learning and how to utilize it in prediction.5. Practical experience of implementing data mining algorithms using one of the popular data mining tools.6. The ability to work in a team through collaboration in a team work to solve a practical problem.
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p><u>Introduction to Data Mining</u></p> <p>In this section, a brief introduction about the data mining, data types, and general structure of data mining algorithms is introduced. [2 hrs]</p> <p><u>Data Preprocessing</u></p> <p>In this section, a brief introduction about data preprocessing and its importance and effect on the result model accuracy. Different approaches will be explored such as datatypes of the attributes and different approaches of data preprocessing such as data reduction, feature selection, and reduction. [4 hrs]</p> <p><u>Classification and Clustering</u></p> <p>In this section, a brief introduction about classification algorithms is introduced. Algorithms such as decision tree algorithms, Naïve bayes, K-nearest neighbor will be</p>

	<p>explained. The students will explore the fundamental of clustering approach and the algorithms in this field. [12 hrs]</p> <p><u>Deep Learning and Outlier detection</u></p> <p>In this section, different algorithms of deep learning are explored such as artificial neural network, convolutional neural network, recurrent neural network, and graph neural network. The concept of outlier detection concept in the different sectors will be explored. [12 hrs]</p>
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through group project, classes, reports ,feedback, discussions, assignments, project, and interactive tutorials and by considering types of simple experiments, and exercises involving some sampling activities that are interesting to the students.</p>

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	47	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	103	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10% (10)	2, 5, 8, and 12	LO #1, #2, and #4
	Assignments	2	10% (10)	2 and 12	All
	Project	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #2, #5 and #6
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 – 6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Data Mining
Week 2	Data Preprocessing
Week 3	Data Measurements
Week 4	Pattern Mining and Association Rules
Week 5	Classification Concept, Decision Trees
Week 6	Classification Concept, Naïve Bayes
Week 7	Classification Concept, KNN
Week 8	Improving Classification Accuracy

Week 9	Clustering Analysis
Week 10	Deep Learning, CNN
Week 11	Deep Learning, RNN
Week 12	Deep Learning, GNN
Week 13	Outlier Detection
Week 14	Data Mining Trends
Week 15	Federated Learning
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر (المادة نظري)	
	Material Covered in (Weka Workbench)
Documentation	https://docs.weka.io/
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	

Week 11	
Week 12	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Data Mining, Edition 4 Concepts and Techniques By Jiawei Han, Jian Pei and Hanghang Tong, 2022	NO
Recommended Texts	Data Mining: Practical Machine Learning Tools and Techniques (Third Edition) by Ian Witten, Eibe Frank, and Mark Hall.	YES
Websites	https://www.coursera.org/specializations/data-mining	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Information Security		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CSITCIS404		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	4	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Name	e-mail	E-mail
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> 1. Understand the role of information security. 2. Analyze the strategic significance of information security. 3. Explore the impact of recent information technology developments and information security . 4. Learn how information security processed by modern technology from a business user perspective. 5. Examine the influence of networks and the Internet on information security. 6. Develop skills in information security in information technology .
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<p>Upon successful completion of this course students will be able to:</p> <ol style="list-style-type: none"> 1. Evaluate the computer network and information security needs of an organization. Explain concepts and theories of cryptography and apply them to various situations, dealing with cryptography methods, analyzing performance and implementing new technologies. 2. Assess information-security risk management policies in order to adequately protect an organization's critical information and assets. 3. Analyze and evaluate the security threats needs of an organization.
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>Chapter One: Overview</p> <ul style="list-style-type: none"> • COMPUTER SECURITY CONCEPTS • THE OSI SECURITY ARCHITECTURE <p>Chapter Two: CLASSICAL ENCRYPTION TECHNIQUES</p> <ul style="list-style-type: none"> • Symmetric Cipher Model • Substitution Techniques <p>Chapter Three: BLOCK CIPHERS AND THE DATA ENCRYPTION STANDARD</p> <ul style="list-style-type: none"> • Block Cipher Principles <ul style="list-style-type: none"> ○ Stream Ciphers and Block Ciphers ○ Motivation for the Feistel Cipher Structure

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	47	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	103	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10% (10)	5 and 10	LO (#1, #2), #6, #7 and (#10, #11)
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Chapter One: Overview <ul style="list-style-type: none"> • Lecture COMPUTER SECURITY CONCEPTS • Discussion THE OSI SECURITY ARCHITECTURE SECURITY ATTACKS
Week 2	<ul style="list-style-type: none"> • Lecture SECURITY SERVICES • Discussion SECURITY MECHANISMS A MODEL FOR NETWORK SECURITY
Week 3	Chapter Two: CLASSICAL ENCRYPTION TECHNIQUES <ul style="list-style-type: none"> • Lecture Symmetric Cipher Model • Discussion Substitution Techniques Transposition Techniques
Week 4	<ul style="list-style-type: none"> • Lecture Rotor Machines Steganography
Week 5	<ul style="list-style-type: none"> • Block Cipher Principles <ul style="list-style-type: none"> ○ Lecture Stream Ciphers and Block Ciphers ○ Discussion Motivation for the Feistel Cipher Structure The Feistel Cipher
Week 6	<ul style="list-style-type: none"> • The Data Encryption Standard <ul style="list-style-type: none"> ○ Lecture DES Encryption DES Decryption
Week 7	<ul style="list-style-type: none"> • A Des Example <ul style="list-style-type: none"> ○ Results The Avalanche Effect
Week 8	<ul style="list-style-type: none"> • The Strength of Des <ul style="list-style-type: none"> ○ Lecture The Use of 56-Bit Keys ○ Discussion The Nature of the DES Algorithm Timing Attacks
Week 9	<ul style="list-style-type: none"> • The Strength of Des <ul style="list-style-type: none"> ○ Lecture The Use of 56-Bit Keys ○ Discussion The Nature of the DES Algorithm Timing Attacks
Week 10	<ul style="list-style-type: none"> • Differential and Linear Cryptanalysis <ul style="list-style-type: none"> ○ Lecture Differential Cryptanalysis Linear Cryptanalysis
Week 11	<ul style="list-style-type: none"> • Block Cipher Design Principles <ul style="list-style-type: none"> ○ Discussion DES Design Criteria ○ Lecture Number of Rounds

	<ul style="list-style-type: none"> ○ Lecture Design of Function F Key Schedule Algorithm
Week 12	Chapter Four: BASIC CONCEPTS IN NUMBER THEORY AND FINITE FIELDS <ul style="list-style-type: none"> • Lecture Divisibility and The Division Algorithm • The Euclidean Algorithm Modular Arithmetic
Week 13	<ul style="list-style-type: none"> • Lecture Groups, Rings, and Fields
Week 14	Lecture Finite Fields of the Form $GF(p)$
Week 15	<ul style="list-style-type: none"> • Polynomial Arithmetic Finite Fields of the Form $GF(2^n)$
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	المادة نظرية لا يوجد بها مختبر
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Business Information System analysis, design and practice, Graham Curtis and David Cobham , Fifth edition	Yes
Recommended Texts	Information Systems for Business and Beyond, David T. Bourgeois, Creative Commons Attribution (CC BY),2014.	Yes
Websites	https://www.pdfdrive.com/search?q=business+information+systems&pagecount=&pubyear=&searchin=&em=	

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Graduation Project		Module Delivery
Module Type	Core		<input type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CSITCIS405		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	4	Semester of Delivery	
Administering Department	CIS	College	CSIT
Module Leader	Name	e-mail	E-mail
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor	Name (if available)	e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	12/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<p>This semi-structured course is intended to guide students into the initiation, planning and designing of their graduation projects. In this context, they are expected to decompose a business related IS problem into manageable components. Problems can be identified through the evaluation of organizational processes and identifying possible areas of improvement where IS can bring value. Students are expected to apply the project life cycle in-line with the organization's strategic plans. While working in groups, students are supposed to design IT projects, data and information management solutions to provide competitive advantage and high quality user experience. Groups will be evaluated based on the submitted documentations that are reporting on their solution using appropriate standardized templates. Along with that, they will be delivering these solutions in an effective oral presentation.</p>
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> 1. Reproduce state of the art from scientific literature related to a computing problem. 2. Apply analytical and critical thinking to decompose a project into manageable work tasks. 3. Develop comprehensive requirement specification by gathering functional and nonfunctional requirements of the project. 4. Schedule tasks and resources to effectively manage an IS project. 5. Design information technology, data and information management solutions in line with organizational strategy and goals to provide competitive advantage and high-quality user experience. 6. Write technical reports and documentation. 7. Develop communication skills through presentation to peers. 8. Develop new skills and use them to solve the given IS problem. 9. Analyze ethical, social, professional, legal, implications of proposed solutions on organizational strategy and goals. 10. Develop skills to work in a group project to produce quality deliverables. 11. Develop skills to structure themselves to work in a cohesive manner. 12. Identify different information system management implication related to a development project and propose appropriate tools and technologies to solve these issues. 13. Understand various ways the proposed IS solution impacts the organization, individuals and society. 14. Describe that how proposed solution impacts the client organization in fostering

	<p>effective business process management.</p> <p>15. Assess the security and risk requirements for the given organization and suggest appropriate solution.</p>
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

<p>Structured SWL (h/sem)</p> <p>الحمل الدراسي المنتظم للطالب خلال الفصل</p>	17	<p>Structured SWL (h/w)</p> <p>الحمل الدراسي المنتظم للطالب أسبوعيا</p>	1
<p>Unstructured SWL (h/sem)</p> <p>الحمل الدراسي غير المنتظم للطالب خلال الفصل</p>	133	<p>Unstructured SWL (h/w)</p> <p>الحمل الدراسي غير المنتظم للطالب أسبوعيا</p>	7
<p>Total SWL (h/sem)</p> <p>الحمل الدراسي الكلي للطالب خلال الفصل</p>	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes				
	Assignments	2	20% (20)	2 and 12	
	Project	1	10% (10)	Continuous	
	Report	1	10% (10)	13	
Summative assessment	Midterm Exam				
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	

Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر (المادة نظري)	
Documentation	
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	

Week 12	
Week 13	
Week 14	
Week 15	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	-	
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
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Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Business Information Systems		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CSITCIS406		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	4	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Name	e-mail	E-mail
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<ol style="list-style-type: none">1. Understand the role of information in managerial decision making.2. Analyze the strategic significance of information systems within organizations.3. Explore the impact of recent information technology developments on end-user computing in business.4. Learn how information is organized, stored, and processed by modern technology from a business user perspective.5. Examine the influence of networks and the Internet on business operations.6. Develop skills in analyzing and designing business information systems.
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<p>By achieving the course objectives related to business information systems, students will:</p> <ol style="list-style-type: none">1. Develop a comprehensive understanding of the nature of information and its crucial role in supporting decision making within a business context.2. Recognize the strategic significance of information systems in enabling organizations to achieve their goals and objectives.3. Explore the impact of recent advancements in information technology on the emergence of end-user computing and its relevance in business operations.4. Gain insights into how modern information technology organizes, stores, and processes data to meet the specific needs of business users.5. Understand the implications of networks and the Internet on various aspects of business, such as communication, collaboration, and e-commerce.6. Acquire the skills and knowledge necessary for the analysis and design of effective business information systems, considering organizational requirements and constraints.
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>Indicative Content:</p> <ol style="list-style-type: none">1. Nature of Information and Decision Making:<ul style="list-style-type: none">- Role of information in managerial decision making.- Sources of information and data collection methods.- Transforming data into meaningful insights.2. Strategic Significance of Information Systems:<ul style="list-style-type: none">- Alignment between information systems and organizational objectives.- Impact on efficiency, effectiveness, and competitiveness.- Influence on key business processes.

3. Recent Developments in Information Technology and End-User Computing:

- Emerging technology trends (cloud computing, AI, big data).
- Empowering end-users within organizations.
- Benefits, challenges, and implications of end-user computing.

4. Organization, Storage, and Processing of Information:

- Principles of information organization and databases.
- Efficient storage and retrieval techniques.
- Data visualization and business intelligence tools.

5. Impact of Networks and the Internet on Business:

- Role of networks and the Internet in communication and collaboration.
- Influence of e-commerce, social media, and mobile technologies.
- Opportunities and challenges in networked environments.

6. Analysis and Design of Business Information Systems:

- Systematic approaches to analyzing business requirements.
- Tools and techniques for designing information systems.
- Application through case studies and projects.

Students will engage in discussions, case studies, and hands-on activities to reinforce their understanding. Practical assignments and projects will provide opportunities to apply knowledge and skills in analyzing and designing business information systems.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

Learning and Teaching Strategies:

The main strategy that will be adopted in delivering this module is to encourage students' participation and refine their critical thinking skills through interactive classes and hands-on lab sessions. The following strategies will be employed:

1. **Interactive Classes:** Engaging classroom sessions will involve a combination of lectures, discussions, and real-world examples. Students will be encouraged to actively participate, ask questions, and share their insights to foster a deeper understanding of the course concepts.
2. **Hands-on Lab Sessions:** The module will include dedicated lab sessions where students will have the opportunity to apply theoretical concepts in practical settings. These labs will involve exercises, experiments, and sampling activities that are relevant and interesting to the students. This hands-on approach will enhance their learning experience and reinforce their understanding of the subject matter.
3. **Group Activities and Discussions:** Collaborative group activities and discussions will encourage students to work together, share ideas, and learn from each other's perspectives. This will foster teamwork, communication skills, and the ability to analyze complex problems from different angles.
4. **Assessment and Feedback:** Formative and summative assessments will be used to evaluate students' progress and provide constructive feedback. This will help students track their learning and identify areas for improvement.

Through these strategies, students will actively participate in lab exercises, refining and expanding their critical thinking skills. The combination of interactive classes, hands-on lab sessions, group activities, and regular assessment and feedback will create an engaging and supportive learning environment, enabling students to effectively grasp the concepts and develop practical skills in business information systems.

Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	62	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	88	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10% (10)	5 and 10	LO (#1, #2), #6, #7 and (#10, #11)
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Information systems
Week 2	Strategy and information systems
Week 3	Business information technology- Applications packages and programs
Week 4	Distributed systems, networks and the organization
Week 5	The Internet and the World Wide Web
Week 6	Electronic commerce and business
Week 7	Decision support and end-user computing
Week 8	File organization and databases for business information systems
Week 9	Information systems: control and responsibility
Week 10	Information systems development: an overview
Week 11	Process analysis and modelling
Week 12	Data analysis and modelling
Week 13	Systems design
Week 14	Detailed design, implementation and review
Week 15	Systems development: further tools, techniques and alternative approaches
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	<p>Introduction to Python for Data Analysis</p> <ul style="list-style-type: none"> • Introduction to Python programming language and its applications in data analysis. • Setting up the Python environment for data analysis. • Basic Python syntax, variables, and data types.
Week 2	<p>Data Manipulation with Pandas</p> <ul style="list-style-type: none"> • Introduction to the Pandas library for data manipulation. • Loading and exploring datasets using Pandas DataFrames. • Data cleaning, filtering, and transformation techniques.
Week 3	<p>Exploratory Data Analysis (EDA)</p> <ul style="list-style-type: none"> • Exploratory data analysis techniques for gaining insights from data. • Descriptive statistics, data visualization, and summary metrics. • Identifying patterns, trends, and outliers in business datasets.
Week 4	<p>Statistical Analysis with Python</p> <ul style="list-style-type: none"> • Introduction to statistical analysis using Python. • Hypothesis testing, confidence intervals, and p-values. • Statistical tests for comparing groups and assessing relationship
Week 5	<p>Data Visualization for Business Insights</p> <ul style="list-style-type: none"> • Creating effective visualizations using Python libraries (e.g., Matplotlib, Seaborn). • Visualizing business data trends, distributions, and relationships. • Design principles for impactful data visualizations.
Week 6	<p>Introduction to Machine Learning for Business</p> <ul style="list-style-type: none"> • Overview of machine learning algorithms and their applications in business. • Supervised and unsupervised learning techniques. • Implementing machine learning models using Python (e.g., Scikit-learn).
Week 7	<p>Predictive Analytics for Business Decision Making</p> <ul style="list-style-type: none"> • Building predictive models for business forecasting and decision making. • Regression analysis, classification algorithms, and model evaluation.

	<ul style="list-style-type: none"> • Feature engineering and model selection techniques.
Week 8	<p>Text Mining and Sentiment Analysis</p> <ul style="list-style-type: none"> • Text preprocessing techniques for business text data. • Performing sentiment analysis and opinion mining using Python. • Extracting insights from customer reviews, social media data, etc
Week 9	<p>Time Series Analysis for Business Forecasting</p> <ul style="list-style-type: none"> • Introduction to time series analysis concepts. • Time series data preprocessing, visualization, and decomposition. • Forecasting techniques, such as ARIMA and exponential smoothing.
Week 10	<p>Data Wrangling and Integration</p> <ul style="list-style-type: none"> • Techniques for merging, joining, and reshaping datasets. • Data aggregation, grouping, and summarization. • Handling missing data and dealing with data quality issues.
Week 11	<p>Data Storytelling and Presentation</p> <ul style="list-style-type: none"> • Communicating data insights effectively through storytelling. • Presenting findings using data visualization tools and techniques. • Creating compelling narratives from business data analysis.
Week 12	<p>Advanced Data Analysis Techniques</p> <ul style="list-style-type: none"> • Dimensionality reduction techniques (e.g., PCA) for feature extraction. • Cluster analysis and segmentation for customer profiling. • Network analysis for understanding business relationships.
Week 13	<p>Project Showcase and Recap</p> <ul style="list-style-type: none"> • Presenting and showcasing individual or group projects focused on data analysis in business. • Recapitulation of key concepts and techniques covered in the lab sessions. • Q&A session and final discussions on data analysis in a business context.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Business Information System analysis, design and practice, Graham Curtis and David Cobham , Fifth edition	Yes
Recommended Texts	Information Systems for Business and Beyond, David T. Bourgeois, Creative Commons Attribution (CC BY),2014.	Yes
Websites	https://www.pdfdrive.com/search?q=business+information+systems&pagecount=&pubyear=&searchin=&em=	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
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Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Multimedia		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CSITCIS407		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	4	Semester of Delivery	
Administering Department	CIS	College	CSIT
Module Leader	Name	e-mail	
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	2
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	<ol style="list-style-type: none">1. To develop problem solving skills and understanding of multimedia .2. To understand multimedia and what it is .3. This course deals with the basic concept of multimedia.4. This is the basic subject for all multimedia skills .5. To understand multimedia applications .6. An overview of macromedia flash; MM hardware, application areas, stages of MM project
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none">1. Understand the multimedia and principles .2. List the various terms associated with multimedia.3. Summarize what is meant by multimedia .4. vector graphic; Image processing and programming skills;.5. Compression techniques (JPEG and MPEG); Lab: Presentations of Flash and programming assignments .6. Media and data stream, transmission modes, authoring tools (types, features) .7. Lab: Flash action scripts; Compression (symmetric vs. asymmetric, dialogue mode vs. retrieval mode, RLE, Huffman) .

<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>1. Introduction</p> <p>What is multimedia?</p> <p>Definitions</p> <p>Where to use multimedia</p> <p>Delivering multimedia</p> <p>2. Text</p> <p>The Power of Meaning</p> <p>About Fonts and Faces</p> <p>Using Text in Multimedia</p> <p>Computers and Text</p> <p>Font Editing and Design Tools</p> <p>Hypermedia and Hypertext</p> <p>3. Images</p> <p>Before You Start to Create</p> <p>Making Still Images</p> <p>Color</p> <p>Image File Formats</p> <p>4 Sound</p> <p>The Power of Sound</p> <p>Digital Audio</p> <p>MIDI Audio</p> <p>MIDI vs. Digital Audio</p> <p>Multimedia System Sounds</p> <p>Audio File Formats</p> <p>Vaughan's Law of Multimedia Minimums</p> <p>Adding Sound to Your Multimedia Project</p> <p>5. Animation</p> <p>The Power of Motion</p> <p>Principles of Animation</p> <p>Animation by Computer</p> <p>Making Animations That Work</p> <p>6. Video</p>
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	<p>Using Video</p> <p>How Video Works and Is Displayed</p> <p>Digital Video Containers</p> <p>Obtaining Video Clips</p> <p>Shooting and Editing Video</p> <p>7. Making Multimedia</p> <p>The Stages of a Multimedia Project</p> <p>What You Need: The Intangibles</p> <p>What You Need: Hardware</p> <p>What You Need: Software</p> <p>What You Need: Authoring Systems</p> <p>8. Multimedia Skills</p> <p>The Team</p> <p>The Sum of Parts</p> <p>9. The Internet and Multimedia</p> <p>Internet History</p> <p>Internetworking</p> <p>Multimedia on the Web</p>
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	<p>Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.</p>

Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	47	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	103	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	#1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	#3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	2	10% (10)	13	#5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	#1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week1	1.Introduction What is multimedia? Definitions
Week 2	Where to use multimedia Delivering multimedia
Week 3	2.Text The Power of Meaning About Fonts and Faces
Week 4	Using Text in Multimedia Computers and Text Font Editing and Design Tools
Week 5	Hypermedia and Hypertext
Week 6	.Images Before You Start to Create Making Still Images
Week 7	Color Image File Formats 4 Sound The Power of Sound
Week 8	Digital Audio MIDI Audio

	<p>MIDI vs. Digital Audio</p> <p>Multimedia System Sounds</p> <p>Audio File Formats</p>
Week 9	<p>Vaughan's Law of Multimedia Minimums</p> <p>Adding Sound to Your Multimedia Project</p> <p>5.Animation</p> <p>The Power of Motion</p>
Week 10	<p>Principles of Animation</p> <p>Animation by Computer</p> <p>Making Animations That Work</p> <p>6. Video</p> <p>Using Video</p> <p>How Video Works and Is Displayed</p>
Week 11	<p>Digital Video Containers</p> <p>Obtaining Video Clips</p> <p>Shooting and Editing Video</p>
Week 12	<p>Making Multimedia</p> <p>The Stages of a Multimedia Project</p> <p>What You Need: The Intangibles</p> <p>What You Need: Hardware</p>
Week 13	<p>What You Need: Software</p> <p>What You Need: Authoring Systems</p> <p>8.Multimedia Skills</p>
Week 14	<p>The Team</p> <p>The Sum of Parts</p>

Week 15	The Internet and Multimedia Internet History Internetworking Multimedia on the Web
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Setting up the programming language that compatible with multimedia application.
Week 2	Discuss Delivering multimedia
Week 3	Implementation the Text The Power of Meaning About Fonts and Faces
Week 4	Implementation the Hypermedia and Hypertext
Week 5	Implementation Images
Week 6	Discuss what happen Before You Start to Create Making Still Images
Week 7	Color Implementation of Image File Formats Discuss and implementation Sound The Power of Sound
Week8	Implementation of Digital Audio

	<p>MIDI Audio</p> <p>MIDI vs. Digital Audio</p> <p>Multimedia System Sounds</p> <p>Audio File Formats</p>
Week9	<p>Discuss and implementation Animation</p> <p>The Power of Motion</p>
Week10	<p>Principles of Animation</p> <p>Animation by Computer</p> <p>Making Animations That Work</p>
Week11	<p>Video</p> <p>Using Video</p> <p>How Video Works and Is Displayed</p>
Week12	<p>Case study :Making Multimedia</p> <p>The Stages of a Multimedia Project</p>
Week13	<p>Case study: Multimedia on the Web .</p>

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Vaughan, Tay. <i>Multimedia: Making it work</i> . Tata McGraw-Hill Education, 2006.	e-copy (Yes)
Recommended Texts	Ze-Nian Li & Mark S Drew, <i>Fundamentals of Multimedia</i> , Prentice hall, 2004.	e-copy (Yes)
Websites		

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Geographic Information Systems		Module Delivery	
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CSITCIS408			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	4	Semester of Delivery		8
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Huda A. Ahmed		e-mail	huda.ahmed@uobasrah.edu.iq
Module Leader's Acad. Title	lecturer		Module Leader's Qualification	M.Sc.
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	01/06/2023		Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None		Semester
Co-requisites module	None		Semester

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> 1. Introduce students to the foundational concepts, principles, and terminology of GIS. 2. Explain why Geographic Information Technology used? 3. Explore the principles the Nature of Geographical Data. 4. Provide students with knowledge of component of GIS. 5. Introduce students to the Representation real world in GIS. 6. fundamentals of GIS data modeling
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<p>Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks.</p> <ol style="list-style-type: none"> 1. Gain a comprehensive understanding of the fundamental concepts, principles, and terminology related to GIS and how can use in real world. 2. Demonstrate knowledge and comprehension of various GIS data modeling depending on application used. 3. Apply the principles and techniques of Global Positioning System (GPS). 4. explain and understanding How a GPS receiver works. 5. Understand and apply the limitations of GPS. 6. Apply and understand the concept of Data visualization and GIS. 7. Demonstrate awareness and understanding of GIS Visualization problem.
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> • Module 1: Introduction to GIS. [12 hrs] • Module 2: component of GIS. [12 hrs] • Module 3: Representation real world in GIS. [12 hrs] • Module 4: Global Positioning System (GPS). [12 hrs] • Module 5: Data visualization and GIS. [12 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	47	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	103	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to GIS
Week 2	Representation the Geographical Data GIS
Week 3	Components of a GIS
Week 4	Representing the real world in GIS
Week 5	GIS and maps
Week 6	The Nature of Geographical Data
Week 7	GIS Data Modelling
Week 8	Raster, Vector, and Object GIS Data model
Week 9	Data Maintenance
Week 10	Spatial autocorrelation and scale
Week 11	Dimensionality of Maps
Week 12	Geovisualization
Week 13	Global Positioning System (GPS)
Week 14	The limitations of GPS
Week 15	Data visualization and GIS
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Eric Conrad , Seth Misenar, Joshua Feldman, CISSP® Study Guide , Fourth Edition, 2023 Elsevier Inc.	Yes
Recommended Texts	George K. Kostopoulos, "CYBERSPACE and CYBERSECURITY," © 2013 by Taylor & Francis Group, LLC. Josiah Dykstra, "Essential Cybersecurity Science," © 2016 O'Reilly Media, Inc.	Yes
Websites		

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Data Warehouse		Module Delivery	
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CSITCIS409			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	4	Semester of Delivery		8
Administering Department	CIS	College	CSIT	
Module Leader	Alaa Khalaf Hamoud		e-mail	Alaa.hamoud@uobasrah.edu.iq
Module Leader's Acad. Title	Assist. Prof.		Module Leader's Qualification	MSc
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	12/06/2023		Version Number	1.0

Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	System Analysis & Design, Decision Support Systems, Database.		Semester	1,2
Co-requisites module	None		Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<p>The student will be able to implement a data warehouse as a base for supporting strategic decisions.</p> <ol style="list-style-type: none"> 1. Understand the concept of data warehouse and its role in building support decision system. 2. Understand the multidimensional nature of the data warehouse. 3. The ability to choose the proper structure among different structures. 4. Understanding how to build a solid and consistent data warehouse using proper tools. 5. Implement and apply proper OLAP to get deep knowledge from the data.
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> 1. Select the proper tool (License, Free, ... etc) tool to implement data warehouse. 2. Design the proper structure (scheme) for the data warehouse. 3. The ability to handle different heterogeneous data sources. 4. Design short-long term data warehouse/mart. 5. The ability to implement ETL process. 6. Choose and implement the proper OLAP tool. 7. Implement a system to submit ad/hoc queries/ multidimensional expressions and get the results as reports. 8. Design ad/hoc reports and (expert) reports.
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p><u>Introduction to Data Warehouse</u></p> <p>In this section, a brief introduction about the data warehouse, ETL, OLAP, metadata and data warehouse deployment I explained. The students should be able to distinguish the difference between data mart and enterprise data warehouse and the aim of using them for short-long term decision support strategies. The logical and physical structure of the data warehouse is explained. [2 hrs]</p> <p><u>Data Warehousing</u></p> <p>The main concept underlying data warehousing is explained. Different concepts are explained such as Data warehouse and data warehousing; data warehouse and the industry; definitions; operational databases vs. data warehouses. The main components of the data warehousing process are explained. [4 hrs]</p>

	<p><u>ETL</u></p> <p>Since ETL process takes more than 70% of data warehouse implementation, so it will take more effort and time to implement. Different concepts will be explained such as General requirements; Back room ETL; Data profiling; Meta data; Data cleaning; Data transformation, besides the difficulties, and techniques in each step. [14 hrs]</p> <p><u>OLAP</u></p> <p>The multidimensional data point is the underlying concept of OLAP operations. Different servers will be explained and different operation will be implemented to get different results that construct the reports. [6 hrs]</p> <p><u>Data Warehouse Deployment</u></p> <p>The final step in DW implementation process is get all things together to implement a data warehouse and deploy it. The process of combining automated ETL with OLAP operations and construct ad/hoc queries is the final step of the data warehousing process. [4 hrs]</p>
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through group project, classes, reports ,feedback, discussions, assignments, project, and interactive tutorials and by considering types of simple experiments, and exercises involving some sampling activities that are interesting to the students.</p>

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	62	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	88	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10% (10)	2, 5, 8, and 12	LO #1, #2, #4 and #5, #6
	Assignments	2	10% (10)	2 and 12	LO #2, #4, #5, #6, and #7, #8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #2, #5 and #6
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Data Warehouse
Week 2	Fundamentals of Data Warehousing
Week 3	Principles Of Dimensional Modeling
Week 4	Extract, Transform, and Loading requirements
Week 5	Extract, Transform, and Loading Data Structures
Week 6	Extract, Transform, and Loading (Extraction Techniques)
Week 7	Extract, Transform, and Loading (Transformation Techniques)
Week 8	Extract, Transform, and Loading (Loading Techniques)
Week 9	Delivering Dimensions Tables.
Week 10	Delivering Fact Table(s).
Week 11	Introduction to OLAP
Week 12	OLAP Servers
Week 13	Meta Data Server
Week 14	Data Warehouse Deployment
Week 15	Data Warehouse Testing and Troubleshooting
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered in (Pentaho Data Integration)
Documentation	https://help.hitachivantara.com/Documentation/Pentaho/9.1/Setup/Pentaho_Data_Integration_(PDI)_tutorial
Week 1	Introduction to Data Warehouse (data sources) and workplace
Week 2	Jobs and Transformations, Sequencing,
Week 3	PDI tools for Job and Transforms (Extract, Transform, and Load).
Week 4	PDI tools (General)
Week 5	PDI tools (File Management)
Week 6	PDI tools (Conditions)
Week 7	PDI tools (Input, and Output)
Week 8	PDI tools (Transform)
Week 9	PDI tools (Scripting)
Week 10	PDI tools (Lookup)
Week 11	Introduction to Schema Workbench (OLAP)
Week 12	Schema Workbench (OLAP) Operations
Week 13	Deploy OLAP Server Online.
Week 14	Project Presentation
Week 15	Project Presentation

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. The Data Warehouse ETL Toolkit Practical Techniques for Extracting, Cleaning, Conforming, and Delivering Data. 2. The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling, Third Edition.	Yes
Recommended Texts	Data Warehousing Fundamentals for IT Professionals	Yes
Websites	https://www.coursera.org/specializations/data-warehousing	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
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Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54). The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Cybersecurity		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CSITCIS410		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Dr. Haider M. Al-Mashhadi	e-mail	Mashhad01@gmail.com
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Information security	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<ol style="list-style-type: none">1. Introduce students to the foundational concepts, principles, and terminology of cybersecurity. This includes understanding the importance of protecting information and systems, the evolving threat landscape, and the role of cybersecurity in modern society.2. Familiarize students with various security policies, standards, and best practices that are relevant to the field of cybersecurity. This includes understanding legal and regulatory requirements, industry frameworks, and international standards related to information security.3. Explore the principles and techniques of securing computer networks against unauthorized access, attacks, and data breaches.4. Provide students with knowledge of secure software development practices and methodologies. This involves understanding common software vulnerabilities, secure coding techniques, secure software development lifecycle, and the importance of testing and vulnerability assessments.5. Introduce students to the fundamentals of incident response and digital forensics. This includes learning how to detect, respond, and recover from cybersecurity incidents, as well as conducting digital investigations and preserving evidence in a legally admissible manner.
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<p>Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks.</p> <ol style="list-style-type: none">1. Gain a comprehensive understanding of the fundamental concepts, principles, and terminology related to cybersecurity, including the importance of protecting information and systems, the evolving threat landscape, and the role of cybersecurity in society.2. Demonstrate knowledge and comprehension of various security policies, standards, and best practices relevant to cybersecurity, including legal and regulatory requirements, industry frameworks, and international standards related to information security.3. Apply the principles and techniques of securing computer networks against unauthorized access, attacks, and data breaches, including understanding network architecture, secure communication protocols, firewalls, intrusion detection systems, and virtual private networks (VPNs).4. Apply secure software development practices and methodologies, including understanding common software vulnerabilities, secure coding techniques, secure software development lifecycle, and the importance of testing and vulnerability assessments.5. Understand and apply the fundamentals of incident response and digital forensics, including detecting, responding, and recovering from cybersecurity incidents, as well as conducting digital investigations and preserving evidence in a legally admissible manner. Define Ohm's law.

	<ol style="list-style-type: none"> 6. Apply the principles and algorithms of cryptography and encryption, including understanding encryption methods, cryptographic protocols, digital signatures, key management, and the role of cryptography in securing data and communications. 7. Apply skills in identifying, assessing, and managing cybersecurity risks, including understanding risk assessment methodologies, threat modeling, risk mitigation strategies, and business continuity planning. 8. Understand and apply ethical and legal considerations associated with cybersecurity, including privacy laws, intellectual property rights, ethical hacking, professional ethics, and the responsibilities of cybersecurity professionals. 9. Demonstrate awareness and understanding of emerging technologies and trends in cybersecurity, including cloud security, Internet of Things (IoT) security, artificial intelligence (AI) and machine learning in cybersecurity, and securing mobile and wireless networks.
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> • Module 1: Introduction to cybersecurity. [12 hrs] • Module 2: Attacks, concepts and techniques. [12 hrs] • Module 3: Protecting your Data and Privacy. [12 hrs] • Module 4: Protecting the organization. [12 hrs] • Module 5: Legal and Ethical Issues. [12 hrs]

<p>Learning and Teaching Strategies</p> <p>استراتيجيات التعلم والتعليم</p>	
<p>Strategies</p>	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.</p>

Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	47	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	103	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - World of cybersecurity
Week 2	Organizational Data
Week 3	Cyber Attackers
Week 4	Cyberwarfare
Week 5	Module 2: Attacks, concepts and techniques: Analyzing a Cyber Attack
Week 6	Methods of Infiltration
Week 7	Security Vulnerability and Exploits
Week 8	Module 3: Protecting Your Data and Privacy: Protecting Your Devices and Network
Week 9	Data Maintenance
Week 10	Safeguarding Your Online Privacy
Week 11	Module 4: Protecting the organization: Cybersecurity Devices and Technologies
Week 12	Behavior Approach to Cybersecurity
Week 13	Module 5: Legal and Ethical Issues: Legal Issues in Cybersecurity
Week 14	Security Operations & Incident Management
Week 15	Operating Systems and Virtualization
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Eric Conrad , Seth Misenar, Joshua Feldman, CISSP® Study Guide , Fourth Edition, 2023 Elsevier Inc.	e-copy (Yes)
Recommended Texts	George K. Kostopoulos, "CYBERSPACE and CYBERSECURITY," © 2013 by Taylor & Francis Group, LLC. Josiah Dykstra, "Essential Cybersecurity Science," © 2016 O'Reilly Media, Inc.	e-copy (yes)
Websites		

Grading Scheme

مخطط الدرجات

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

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