

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Applied statistics		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code			
ECTS Credits	8		
SWL (hr/sem)			
Module Level		Semester of Delivery	
Administering Department		College	
Module Leader		e-mail	Salam.j@kus.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	1/9/2024	Version Number	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Read the course syllabus and identify the section or sections that describe the aims or objectives of the module. 2. Look for statements that outline the overall purpose or goals of the module. 3. Extract and summarize the main aims in a concise and clear manner.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Review the syllabus for specific statements that describe the expected learning outcomes of the module. 2. Identify the knowledge, skills, or competencies that students should gain or demonstrate by the end of the module. 3. List the learning outcomes in a clear and measurable format, using action verbs that describe observable behaviors.
Indicative Contents المحتويات الإرشادية	1. Analyze the syllabus for the sections or subsections that outline the topics or content covered in the module. 2. Identify the main themes, concepts, or subject areas that are addressed in each section. 3. Create a comprehensive list of the indicative contents, ensuring that it reflects the breadth and depth of the module's coverage.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Look for any explicit mentions of teaching or learning strategies in the syllabus. 2. Identify the methods, approaches, or techniques that will be used to

	facilitate learning and achieve the module aims. 3. Take note of any specific instructional strategies, assessment methods, or resources mentioned in the syllabus.
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Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل			
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل			
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)		
	Assignments	2	10% (10)		
	Projects / Lab.	1	10% (10)		
	Report	1	10% (10)		
Summative assessment	Midterm Exam	2 hr	10% (10)		
	Final Exam	2hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Descriptive statistics: - Frequency distribution - Cumulative distribution - Graphical presentation - Measures of central tendency
Week 2	- Measures of dispersion - Measures of skewness and kurtosis - Measures of Position - Exploratory Data Analysis - Tree Diagrams and the
Week 3	- Basic probability Sample Spaces and Probability
Week 4	- Basic probability
Week 5	First Exam
Week 6	Introduction Probability Distributions Mean, Variance, and Expectation
Week 7	Discrete random variables
Week 8	Discrete random variables
Week 9	- Continuous random variables
Week 10	Continuous random variables
Week 11	Test of hypothesis
Week 12	Test of hypothesis
Week 13	Correlation
Week 14	Regression
Week 15	Second Exam
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Getting Started With SPSS Statistics - Introduction - SPSS Statistics Data Editor 1. Data View . 2. Variable View
Week 2	Getting Started With SPSS Statistics - SPSS Statistics Data Editor 1. Data View . 2. Variable View - Creating a Data File
Week 3	Working With Data - Compute - Recode
Week 4	Summarising and Displaying Data - Frequencies
Week 5	Summarising and Displaying Data - Descriptives
Week 6	Summarising and Displaying Data - Explore - Chart Builder - Histogram - Normal Q-Q Plots - Boxplot
Week 7	First Exam
Week 8	One Sample t Test (Purpose of the Independent Samples t Test)/(Analyzing the Data)
Week 9	One Sample t Test (Assumptions) / (APA Style Results Write-Up)
Week 10	One-Way Between Groups ANOVA (Purpose of the One-Way Between Groups ANOVA)/ (Analyzing the Data)
Week 11	One-Way Between Groups ANOVA (Assumptions)/(APA Style Results Write-Up)
Week 12	Correlation (Purpose of Correlation)/(Analyzing the Data)
Week 13	Correlation (Assumptions)/(APA Style Results Write-Up)
Week 14	Regression Purpose of Simple and Multiple Regression)/ (Assumptions)/(APA Style Results Write-Up)
Week 15	Second Exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	-Meyer, Paul L.-Introductory probability and statistical applications-Addison-Wesley Pub. Co._ Amerind (1970) - statistical inference. 3 Dr. Abdul Majeed Hamza.and Dr. Dhafer Hussain Rashid.	yes
Recommended Texts	Elementary Statistics A Step by Step Approach Allan G. Bluman , Professor Emeritus Community College of Allegheny County	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	Human rights		Module Delivery
Module Type	Core		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	MPH12012		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester of Delivery	2
Administering Department	MPHY	College	SCI
Module Leader	Dr.Mohanad Basim Ibrahim	e-mail	mohanad.al.sallami@kus.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	none	e-mail	none
Scientific Committee Approval Date	11/06/2024	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	تهدف المادة إلى بيان أهمية الحقوق الأصلية للصيقة بالإنسان، التي تتفق مع فطرته، والتي يقبلها العقل المجرد، والتي لا تختلف باختلاف الزمان والمكان، وهذه هي حقوق الإنسان.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	تسهم المادة العلمي (لحقوق الإنسان) إلى تثقيف الطالب من الناحية القانونية؛ ليكون مطلع على ماهية الحقوق الإنسانية، وأصلها التاريخي، وتعريف ماله من حقوق وما عليه من التزامات، من خلال معرفة حقه وحدود ذلك الحق، وحقوق الآخرين، وما سعت إليه الدول والمنظمات الدولية والاقليمية في تعزيز مفاهيم تلك الحقوق، وإلزام الدول للنص عليها في التشريعات الداخلية، والضمانات التي تكفل تطبيق تلك الحقوق العالمية.
Indicative Contents المحتويات الإرشادية	إن المحتويات الإرشادية لمادة حقوق الإنسان تتلخص بتهذيب سلوك الطالب، [20hr] وتعريفه إن تعامله مع غيره من بني البشر يقوم على مبدأ: ((إن الناس صنفان؛ إما أخوك في الدين، أو نظير لك في الخلق)). [20 hr]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	نعمد في هذا الجانب إلى ما يلي: 1- يعرف الطالب إبتداءً بمضمون موجز عن المفردات التي سيتم تناولها خلال المحاضرة، ثم نوجه له بعض الأسئلة التي تحرك ذهنه، وتشد إنتباهه؛ لضمان حسن الاستماع. 2- يتم التعمق بشرح المفردات العلمية في حدود تناسب متوسط المستويات العلمية لضمان عدم تجاوز الفروق الفردية عند عموم الطلبة. 3- يتم ترك مساحة للنقاش الحر في إطار الموضوع المخصص للمحاضرة. 4- الحرص على جانب التغذية الراجعة للمعلومات قبل نهاية المحاضرة. 5- التواصل إلكترونياً مع الطلبة لنشر المحاضرات المسجلة، والمكتوبة من خلال الموقع الرسمي للجامعة.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.8
Total SWL (h/sem)	75		

الحمل الدراسي الكلي للطلاب خلال الفصل	
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Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / tutorial.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	1 hr	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	تعريف وطبيعة حقوق الإنسان
Week 2	التطور التاريخي لحقوق الإنسان
Week 3	مميزات حقوق الإنسان عن غيرها من الحقوق
Week 4	حقوق الإنسان في الديانات السماوية
Week 5	حقوق الإنسان في المواثيق الدولية
Week 6	حقوق الإنسان في التشريعات الداخلية
Week 7	حقوق الإنسان الشخصية
Week 8	حقوق الإنسان الاجتماعية
Week 9	حقوق الإنسان الثقافية
Week 10	حقوق الإنسان الاقتصادية
Week 11	ضمانات حقوق الإنسان الدولية
Week 12	ضمانات حقوق الإنسان الإقليمية
Week 13	ضمانات حقوق الإنسان الداخلية (الوطنية)
Week 14	الجزاء المترتبة على المساس بحقوق الإنسان
Week 15	امتحان

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	كتاب/ حقوق الانسان (تطورها، مضامينها، حمايتها) د. رياض عزيز هادي.	Yes
Recommended Texts	كتاب/ حقوق الانسان د. حميد حنون.	No
Websites	https://www.noor-book.com/ https://www.un.org/ar/about-us/universal-declaration-of-human-rights https://ar.wikipedia.org/wiki/	

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
	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

وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	English Language		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	KUS12012		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	
Administering Department	Remote Sensing	College	College of Remote Sensing and Geophysics
Module Leader	Hadeel Falah Hasan	e-mail	Hadeel_alnaqeeb@kus.edu.iq
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	Ma.D
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The purpose of this semester is to provide students with the language and skills they need to carry out their professional goals. This semester offers great opportunities for students to build awareness and practice language in real-life scenarios. The integrated skills curriculum develops the self-confidence of the student for the purpose of success in professional and social encounters within the global English-speaking community.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Search and understand information about vocabulary, pronunciation, usage, and grammar in reference texts, online resources, and English-language dictionaries. 2. Develop the English speaking skills needed to become a contributing participant in small group activities, large group discussions, and oral presentations. 3. Understand texts using effective learning strategies for reading and building vocabulary. 4. Demonstrate an appropriate level of control over grammatical accuracy and lexical adequacy in written and oral communication.
Indicative Contents المحتويات الإرشادية	Ability to communicate effectively with engineers, other professionals, and the community at large.

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 type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Unit One – Hello!
Week 2	Unit Two – Your world!
Week 3	Unit Three – Personal information
Week 4	Unit Four – Family and friends
Week 5	Unit Five – It's my life!
Week 6	Unit Six – Every day
Week 7	Midterm Exam
Week 8	Unit Seven – Places I like!
Week 9	Unit Eight – Where I live!
Week 10	Unit Nine – Happy birthday!
Week 11	Unit Ten – We had a good time!
Week 12	Unit Eleven – We can do it!
Week 13	Unit Twelve – Thank you very much!
Week 14	Unit Thirteen – Here and now!
Week 15	Unit Fourteen – It's time to go!
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس	
Required Texts	(1) New Headway Plus (Beginning) by John and Liz Soars, Oxford: Oxford University Press (2006)
Learning Tools	1. Lectures. 2. Homework and assignments 3. Tests and exams. 4. Classroom questions and discussions. 5. Reports and presentations
Evaluation Method	1. Examinations and tests. 2. Student participation during lectures. 3. A questionnaire about the curricula and the faculty member (teacher).

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
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	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	Satellite Image Processing		Module Delivery
Module Type	Core		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	RSD2117		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level		Semester of Delivery	Three
Administering Department	Remote Sensing	College	Remote Sensing & Geophysics College
Module Leader	Aurass Muhi Taha	e-mail	auraasssoil@kus.edu.iq
Module Leader's Acad. Title	Professor	Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	1/9/2024	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	RSD1205	Semester	Two
Co-requisites module	none	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims

أهداف المادة الدراسية

The main aim of a module on satellite image processing is to provide students with the knowledge and skills necessary to process, analyze and interpret satellite imagery. Some specific module aims of satellite image processing may include:

1. Understanding the principles of satellite image processing: Students should be able to explain the basic principles of satellite image processing, including the types of sensors and platforms used, image acquisition, pre-processing and enhancement.
2. Familiarity with satellite image data and tools: Students should be able to access and analyze satellite image data, using software tools such as image processing software, GIS and remote sensing software. They should be able to interpret and manipulate satellite imagery and understand the limitations and challenges of working with satellite image data.
3. Knowledge of image processing techniques: Students should have a solid understanding of the various image processing techniques such as image enhancement, image classification, and image fusion. They should be able to apply these techniques to satellite imagery.
4. Ability to interpret and analyze satellite imagery: Students should be able to use satellite imagery to identify and analyze patterns in land cover, land use, and environmental change. They should be able to interpret satellite imagery to guide decision-making and support environmental monitoring efforts.
5. Applications of satellite image processing in real-world scenarios: Students should be able to apply their knowledge of satellite image processing to real-world scenarios such as urban planning, disaster management, agriculture and environmental management. They should be able to communicate their findings effectively to stakeholders and decision-makers, and understand the ethical and social implications of their work.

Overall, the module aims to provide students with a solid foundation in the theory and practice of satellite image processing and prepare them for careers in fields such as remote sensing, GIS, environmental science, and urban planning.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes of a module on satellite image processing may vary depending on the specific goals and objectives of the course, the level of the course (undergraduate or postgraduate), and the resources available. However, some common learning outcomes of such a module could include: 1. Understanding the principles of satellite image processing: Students should be able to explain the basic principles of satellite image processing, including the types of sensors and platforms used, image acquisition, pre-processing, and enhancement. 2. Familiarity with satellite image data and tools: Students should be able to access and analyze satellite image data, using software tools such as image processing software, GIS, and remote sensing software. They should be able to interpret and manipulate satellite imagery and understand the limitations and challenges of working with satellite image data. 3. Knowledge of image processing techniques: Students should have a solid understanding of the various image processing techniques such as image enhancement, image classification, and image fusion. They should be able to apply these techniques to satellite imagery. 4. Ability to interpret and analyze satellite imagery: Students should be able to use satellite imagery to identify and analyze patterns in land cover, land use, and environmental change. They should be able to interpret satellite imagery to guide decision-making and support environmental monitoring efforts. 5. Applications of satellite image processing in real-world scenarios: Students should be able to apply their knowledge of satellite image processing to real-world scenarios such as urban planning, disaster management, agriculture, and environmental management. They should be able to communicate their findings effectively to stakeholders and decision-makers, and understand the ethical and social implications of their work. 6. Critical thinking and problem-solving skills: Students should develop critical thinking and problem-solving skills to evaluate the quality and reliability of satellite image data and analyses. They should be able to identify potential sources of error and uncertainty and understand how to mitigate them. 7. Interdisciplinary skills: Students should understand the interdisciplinary nature of
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	satellite image processing and develop the skills to work with experts from different fields, such as remote sensing, GIS, computer science, statistics, and other disciplines. 8. Communication and teamwork skills: Students should develop communication and teamwork skills by working on group projects, presenting their findings, and communicating effectively with stakeholders and decision-makers. Overall, the learning outcomes of a module on satellite image processing should provide students with a comprehensive understanding of the theory and practice of satellite image processing, as well as the tools and techniques necessary to apply this knowledge in real-world scenarios. The module should prepare students for careers in fields such as remote sensing, GIS, environmental science, and urban planning.
Indicative Contents المحتويات الإرشادية	The indicative contents of a module on satellite image processing may vary depending on the specific goals and objectives of the course and the level of the course (undergraduate or postgraduate). However, some common topics that could be covered in such a module include: 1. Introduction to satellite remote sensing: Electromagnetic spectrum, platforms and sensors, resolution, spatial, spectral and temporal dimensions, and image classification. 2. Principles of satellite image processing: Image acquisition, pre-processing, image enhancement, image classification, and accuracy assessment. 3. Image processing techniques: Image enhancement techniques such as contrast stretching, histogram equalization, and filtering. Image classification techniques such as supervised and unsupervised classification, object-based image analysis, and change detection. 4. Applications of satellite image processing: Land use/land cover mapping, urban planning, environmental monitoring, disaster management, and agriculture. 5. Data integration with other sources: Integration of satellite image data with other sources such as ground truth data, GIS data, and geospatial models. 6. Advanced topics in satellite image processing: Hyperspectral remote sensing, lidar

	remote sensing, machine learning techniques, and data fusion. 7. Interpretation and analysis of satellite imagery: Interpretation of satellite imagery to identify land cover types, land use patterns, and environmental changes. Analysis of satellite imagery to inform decision-making and support environmental monitoring efforts. 8. Case studies and real-world applications: Examples of satellite image processing in different environmental and societal settings, such as natural resource management, land use planning, and disaster response. 9. Ethical and social implications of satellite image processing: Ethical considerations related to the use of satellite image processing in different fields, such as environmental management, urban planning, and national security. Overall, the indicative contents of a module on satellite image processing should provide students with a comprehensive understanding of the theory and practice of satellite image processing, as well as the tools and techniques necessary to apply this knowledge in real-world scenarios.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies for a module on satellite image processing may vary depending on the specific goals and objectives of the course, the level of the course (undergraduate or postgraduate), and the resources available. However, some common learning and teaching strategies that could be used in such a module include: 1. Lectures: Lectures can provide an overview of the key concepts and theories related to satellite image processing. Lectures can be delivered in person or online, and may be complemented by slides, videos, or other multimedia resources. 2. Practical sessions: Practical sessions can provide hands-on experience with satellite image processing tools and techniques. These sessions may involve working with real or simulated satellite image data, using software tools such as image processing software, GIS, and remote sensing software, and interpreting and analyzing satellite imagery.

	3. Fieldwork: Fieldwork can provide students with an opportunity to collect ground-truth data and validate satellite image measurements. Fieldwork may involve collecting field observations, measuring environmental variables such as vegetation indices, or mapping land cover using handheld GPS devices. 4. Case studies and group projects: Case studies and group projects can help students apply their knowledge of satellite image processing to real-world scenarios. These activities may involve analyzing satellite image data to solve specific problems, such as mapping land use changes or predicting environmental risks under different scenarios. 5. Guest lectures and seminars: Guest lectures and seminars can provide students with insights from experts in the field of satellite image processing. These sessions may be delivered by researchers, practitioners, or policymakers, and may cover topics such as the latest developments in satellite image processing technology or the use of satellite imagery in environmental management. 6. Online resources: Online resources such as discussion forums, online tutorials, and interactive quizzes can provide students with additional opportunities to engage with the course material and test their understanding of key concepts. Overall, the learning and teaching strategies of a module on satellite image processing should be designed to provide a balance of theoretical knowledge and practical skills, and should prepare students for careers in fields such as remote sensing, GIS, environmental science, and urban planning. The use of hands-on practical sessions and case studies can be particularly effective in helping students develop the skills and confidence necessary to apply satellite image processing techniques in real-world scenarios.
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Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)		
	Assignments	2	10% (10)		
	Projects / Lab.	1	10% (10)		
	Report	1	10% (10)		
Summative assessment	Midterm Exam	2 hr	10% (10)		
	Final Exam	2hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Image Processing Concept
Week 2	Image Geometric Calibration
Week 3	Radiometric Calibration
Week 4	Atmospheric Correction
Week 5	Noise Reduction Processing
Week 6	RGB-HIS Transformation Processing
Week 7	Mid-term Exam
Week 8	Haze Reduction Processing
Week 9	Image Enhancement
Week 10	Contrast Stretching
Week 11	Histogram Matching
Week 12	Spectral Reflectance Computation
Week 13	Spatial Filtering
Week 14	Edge Enhancement and Detection
Week 15	Panchromatic Band Sharpen
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	Image Geometric Calibration
Week 2	Radiometric Calibration for Landsat 4,5, and 7
Week 3	Radiometric Calibration for Landsat 8 and 9
Week 4	Landsat 4,5, and 7 Reflectance Calculation
Week 5	Landsat 8 and 9 Reflectance Calculation
Week 6	Histogram Equalization
Week 7	Panchromatic Band Sharpen

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Jensen, J. R. (2005). Introductory Digital Image Processing: A Remote Sensing Perspective. Prentice Hall. New Jersey. USA.	Yes
Recommended Texts	Campbell, James B. & Randolph H. Wynne. (2011). Introduction to Remote Sensing. The Guilford Press. New York & London. 5 th Edition.	No
Websites	https://www.youtube.com/channel/UCOOUW1LA5B93j5V0oNVYN6Q	

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	Introduction to GIS		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code			
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level		Semester of Delivery	
Administering Department		College	
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/06/2024	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	NONE	Semester	
Co-requisites module	RSC205	Semester	4

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	• To introduce students to the fundamental concepts and principles of GIS • To provide an overview of the components, applications, and historical development of GIS • To familiarize students with GIS data models, structures, and spatial analysis functions • To develop an understanding of coordinate systems, map projections, and their role in GIS • To explore the differences between remote sensing and GIS • To showcase various applications of GIS in different domains
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, students should be able to: 1. Define GIS and explain its objectives in various fields. 2. Summarize the historical development of GIS and identify key milestones. 3. Recognize the components that constitute a GIS system and their roles. 4. Understand and differentiate between different types of maps and map scales. 5. Describe GIS data models and structures, including vector and raster models. 6. Explain the concept of attributes and their importance in GIS. 7. Demonstrate knowledge of geodatabases and metadata in GIS. 8. Understand the fundamentals of coordinate systems and map projections. 9. Perform basic GIS functions, including data acquisition, processing, analysis, storage, and output. 10. Differentiate between remote sensing and GIS and highlight their respective contributions. 11. Identify and discuss various applications of GIS in different fields.
Indicative Contents المحتويات الإرشادية	• Introduction to GIS, including its definition, objectives, and historical background • Overview of the early developments in GIS and their significance • Components of GIS and their roles in data management and analysis • Introduction to maps, map scales, and different types of maps

	• GIS data models and structures, including vector and raster models • Understanding attributes and their importance in GIS data • Geodatabases and metadata in GIS for effective data organization • Coordinate systems and map projections and their application in GIS • GIS functions and operations, such as data acquisition, processing, analysis, storage, and output • Exploring the differences between remote sensing and GIS • Various applications of GIS in different domains, highlighting real-world examples
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Lectures to deliver theoretical concepts, definitions, and historical context • Interactive discussions to engage students in exploring the components and applications of GIS • Practical lab sessions to provide hands-on experience with GIS software, data management, and analysis • Assignments and projects to allow students to apply their knowledge and skills in practical scenarios • Case studies and examples to demonstrate the real-world applications of GIS in different fields • Group discussions and presentations to encourage active participation and knowledge sharing among students • Review sessions to consolidate and reinforce the concepts covered in previous modules

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86		
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64		
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)		
	Assignments	2	10% (10)		
	Projects / Lab.	1	10% (10)		
	Report	1	10% (10)		
Summative assessment	Midterm Exam	2 hr	10% (10)		
	Final Exam	2hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to GIS - Definition and objectives of GIS - History of GIS
Week 2	- Early developments in GIS - Components of GIS - Applications of GIS
Week 3	Map and Map Scales - Introduction to maps - Map scales - Types of maps
Week 4	GIS Data Models and Structure - Introduction to GIS data models - Vector model and structure
Week 5	- Raster model and structure
Week 6	- Attributes - Geodatabase and metadata

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Week 7	Mid-term Exam
Week 8	Coordinate System and Projection in GIS • Understanding Earth • Coordinate systems part 1 •
Week 9	• Coordinate systems part 2 • Map projections
Week 10	GIS Functions (Operations) • Data acquisition (spatial and non-spatial) • Data processing (data management) • Data analysis (spatial and statistical analysis) • Data storage (efficient data storage techniques) • Data output (maps, graphs, tables, reports)
Week 11	Differences between Remote Sensing and GIS
Week 12	Review and Consolidation of Concepts Covered in Previous Modules
Week 13	GIS Applications
Week 14	GIS Applications
Week 15	GIS Applications
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introducing GIS
Week 2	Introducing ArcGIS
Week 3	Interacting with maps (Exploring a GIS Map) • Displaying map data • Navigating a map

Week 4	Interacting with maps (Exploring a GIS Map) continued • 3.3: Using basic tools • 3.4: Looking at feature attributes
Week 5	Interacting with data (Managing GIS Data) • 4.1: Browsing through map data • 4.2: Adding data to a map
Week 6	Interacting with data (Managing GIS Data) continued • 4.3: Working with map layers • 4.4: Creating simple shapefiles
Week 7	Mid-term Exam
Week 8	Exploring online resources • 5.1: Creating a web map
Week 9	Exploring online resources continued • 5.2: Merging online and local layers • 5.3: Sharing a map package
Week 10	Creating simple shapefiles
Week 11	Introducing Projections and Coordinate Systems • 7.1: Define projection
Week 12	Introducing Projections and Coordinate Systems continued • 7.2: Project data
Week 13	Review and consolidation of concepts covered in previous labs
Week 14	Final project work and presentations
Week 15	Review and preparation for assessments/exams

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	"GIS Fundamentals: A First Text on Geographic Information Systems" by Paul Bolstad	

Recommended Texts	Geographic Information Systems and Science" by Paul A. Longley, Michael F. Goodchild, David J. Maguire, and David W. Rhind	
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	Linear Algebra		Module Delivery	
Module Type	S		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	RSC208			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level		Semester of Delivery		2
Administering Department	Rs	College	RG	
Module Leader	Sajeda Kareem Radhi		e-mail	sajeda.kareem@kus.edu.iq
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification	Ph.D.
Module Tutor	1		e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date	1/6/2024		Version Number	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Learn about the properties of matrices. 2. Familiarity with the properties of determinants and how to find them. 3. Learn to solve a system of algebraic equations using the matrix method. 4. Learn about vectors, vector space and their properties. 5. Knowing ways to find eigenvalues. 6. Recognize orthogonality.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand linear equations, vectors, and matrices. 2. Know what vector spaces are and how to prove properties about them. 3. Understand how your new tools and knowledge connect to sample real-world examples.
Indicative Contents المحتويات الإرشادية	1- To believe in the relationship of mathematics and its importance to his specialization. 2- To discuss the relationship between mathematics and physical phenomena. 3- To follow the sequence of the concepts presented and their relationship to his specialization.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	- Following up the scientific development of mathematics by reviewing modern curricula. - Follow-up and development of academic courses and compare them with other universities. - Using the latest teaching aids to motivate the student to learn and understand.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	44		
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	56		
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5,10	Lo# 1,2,10 and 11
	Assignments	2	10% (10)	2,12	Lo# 3,4,6 and 7
	Projects / Lab.				
	Report		10% (10)	13	Lo# 5,8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	Lo# 1-7
	Final Exam	2hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Algebra of Matrices
Week 2	Algebra of Matrices
Week 3	Determinants
Week 4	Determinants
Week 5	Determinants
Week 6	Systems of linear equations
Week 7	Systems of linear equations
Week 8	Systems of linear equations
Week 9	Vectors
Week 10	Vectors
Week 11	Eigenvalues and Eigenvectors
Week 12	Eigenvalues and Eigenvectors
Week 13	Eigenvalues and Eigenvectors
Week 14	Vector Spaces
Week 15	Orthogonality
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Linear Algebra: A modern Introduction, David Poole, Third Edition, Amazon, 2011.	yes
Recommended Texts	Linear Algebra with Applications, Gareth Williams, Eighth Edition, 2014.	yes
Websites	Various lectures and lecture notes on the internet.	

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
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