وزارة التعليم العالي والبحث العلمي
جهاز الإشراف والتقويم العلمي
دائرة ضمان الجودة والاعتماد الأكاديمي
قسم الاعتماد

دليل وصف البرنامج الأكاديمي والمقرر

٢٠٢٤

المقدمة:

يُعد البرنامج التعليمي بمثابة حزمة منسقة ومنظمة من المقررات الدراسية التي تشتمل على إجراءات وخبرات تنظم بشكل مفردات دراسية الغرض الأساس منها بناء وصقل مهارات الخريجين مما يجعلهم مؤهلين لتلبية متطلبات سوق العمل يتم مراجعته وتقييمه سنوياً عبر إجراءات وبرامج التدقيق الداخلي أو الخارجي مثل برنامج الممتحن الخارجي.

يقدم وصف البرنامج الأكاديمي ملخص موجز للسمات الرئيسة للبرنامج ومقرراته مبيناً المهارات التي يتم العمل على اكسابها للطلبة مبنية على وفق اهداف البرنامج الأكاديمي وتتجلى أهمية هذا الوصف لكونه يمثل الحجر الأساس في الحصول على الاعتماد البرامجي ويشترك في كتابته الملاكات التدريسية بإشراف اللجان العلمية في الأقسام العلمية.

ويتضمن هذا الدليل بنسخته الثانية وصفاً للبرنامج الأكاديمي بعد تحديث مفردات وفقرات الدليل السابق في ضوء مستجدات وتطورات النظام التعليمي في العراق والذي تضمن وصف البرنامج الأكاديمي بشكلها التقليدي نظام (سنوي، فصلي) فضلاً عن اعتماد وصف البرنامج الأكاديمي المعمم بموجب كتاب دائرة الدراسات ت م٢٩٠٦/٣ في ٢٠٢٣/٥/٣ فيما يخص البرامج التي تعتمد مسار بولونيا أساساً لعملها.

وفي هذا المجال لا يسعنا إلا أن نؤكد على أهمية كتابة وصف البرامج الاكاديمية والمقررات الدراسية لضمان حسن سير العملية التعليمية.

مفاهيم ومصطلحات:

وصف البرنامج الأكاديمي: يوفر وصف البرنامج الأكاديمي ايجازاً مقتضباً لرؤيته ورسالته وأهدافه متضمناً وصفاً دقيقاً لمخرجات التعلم المستهدفة على وفق استراتيجيات تعلم محددة.

وصف المقرر: يوفر إيجازاً مقتضياً لأهم خصائص المقرر ومخرجات التعلم المتوقعة من الطالب تحقيقها مبرهناً عما إذا كان قد حقق الاستفادة القصوى من فرص التعلم المتاحة. ويكون مشتق من وصف البرنامج.

رؤية البرنامج: صورة طموحة لمستقبل البرنامج الأكاديمي ليكون برنامجاً متطوراً وملهماً ومحفزاً وواقعياً وقابلاً للتطبيق.

رسالة البرنامج: توضح الأهداف والأنشطة اللازمة لتحقيقها بشكل موجز كما يحدد مسارات تطور البرنامج واتجاهاته.

اهداف البرنامج: هي عبارات تصف ما ينوي البرنامج الأكاديمي تحقيقه خلال فترة زمنية محددة وتكون قابلة للقياس والملاحظة.

هيكلية المنهج: كافة المقررات الدراسية / المواد الدراسية التي يتضمنها البرنامج الأكاديمي على وفق نظام التعلم المعتمد (فصلي، سنوي، مسار بولونيا) سواء كانت متطلب (وزارة، جامعة، كلية وقسم علمي) مع عدد الوحدات الدراسية.

مخرجات التعلم: مجموعة متوافقة من المعارف والمهارات والقيم التي اكتسبها الطالب بعد انتهاء البرنامج الأكاديمي بنجاح ويجب أن يُحدد مخرجات التعلم لكل مقرر بالشكل الذي يحقق اهداف البرنامج.

استراتيجيات التعليم والتعلم: بأنها الاستراتيجيات المستخدمة من قبل عضو هيئة التدريس لتطوير تعليم وتعلم الطالب وهي خطط يتم إتباعها للوصول إلى أهداف التعلم. أي تصف جميع الأنشطة الصفية واللاصفية لتحقيق نتائج التعلم للبرنامج.

نموذج وصف البرنامج الأكاديمي

اسم الجامعة: جامعة .. كلية الإمام الإعظم الجامعة

الكلية/ المعهد: كلية .كلية الإمام الإعظم الجامعة

القسم العلمي: قسم ...علوم الحاسبات.

اسم البرنامج الأكاديمي او المهني: بكالوريوسعلوم حاسبات

اسم الشهادة النهائية: بكالوريوس في ..علوم الحاسبات

النظام الدراسي: وحدات

تاريخ اعداد الوصف: 2024/2025

تاريخ ملء الملف: 5/9/2024

التوقيع : Zahraa Adnan

اسم رئيس القسم: أ.م.د زهراء عدنان عبدالكريم

التاريخ : 5/9/2024

التوقيع :

اسم المعاون العلمي: أ.د مكي وليد عبدالكريم

التاريخ :

دقـــق الملف من قبل

شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي:

التاريخ

التوقيع

مصادقة السيد العميد

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer Architecture**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**COM-٢٢٣**				
ECTS Credits	٤				
SWL (hr/sem)	١٠٠				
Module Level	٢		**Semester of Delivery**	٣	
Administering Department	com		**College**	IMA	
Module Leader	KHALID IBRAHIM MOHAMMED Zaineb Riyadh Khalil		**e-mail**	k.ibrahimm@imamaladham.edu.iq zainebalani٨١@imamaladham.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D. M.Sc.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	١٣/٠١/٢٠٢٥		**Version Number**	١,٠	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	١. Introduction to the basic roles and responsibilities for each of the major hardware components of a computer. ٢. Review the need to use a memory hierarchy, perform memory management, and to explain to them the various memory management techniques and their tradeoffs. ٣. Describe the structure, function, and purpose of the computer for presentation as clearly and completely as possible
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١- Have a clear understanding of the computer terminology. ٢- Have knowledge of Computer architecture and Hardware specifications. ٣- Have knowledge of different types of commuters and techniques. ٤- Review the need to use a memory hierarchy, perform memory management, and to explain to them the various memory management techniques and their tradeoffs. ٥- Prepare and deliver coherent and structured verbal and written technical reports. ٦. Review operation of hardware and software working synergistically together.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A - Introduction to Organization & Architecture Introduction to Computer, Basic Concepts, Computer Function and Structure [٥ hrs] Von neuman machine, Flynn computer architecture classification [٥ hrs] Computer memory system [٥ hrs] SRAM & DRAM [٣ hrs] RAM design and ROMs [٥ hrs] Cache memory principles and structure [٥ hrs]. Part B - ٨٠٨٦ Instruction set: Microprocessor Programming Interleaved memory [٥ hrs] Address interleaving and performance model; Virtual Memory Concept [٥ hrs] Paging and Segmentation mechanism [٥ hrs] CPU (Register, Hardware, Micro programmed and I/O) Organization [٣ hrs] Programmed and interrupt I/O [٣ hrs] introduction to parallel processing (SISD, SIMD, MISD, MIMD) [٤ hrs] pipeline structure [٣ hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Provides comprehensive converge of computer architecture including memory, CPU, I/O and parallel system.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	٣٣	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	٣
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	٥٢	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	٣
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	١٠٠		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	٢	١٠٪ (١٠)	٥ and ١٠	LO #١, #٢ and #١٠, #١١
	Assignments	٢	١٠٪ (١٠)	٢ and ١٢	LO #٣, #٤ and #٦, #٧
	Projects / Lab.				
	Report	١	١٠٪ (١٠)	١٣	LO #٥, #٨ and #١٠
Summative assessment	**Midterm Exam**	٢hr	٢٠٪ (٢٠)	٧	LO #١ - #٧
	Final Exam	٣hr	٥٠٪ (٥٠)	١٦	All
Total assessment			١٠٠٪ (١٠٠ Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week ١	Introduction to Computer, Basic Concepts
Week ٢	Computer Function and Structure

Week ٣	Von neuman machine
Week ٤	Flynn computer architecture classification
Week ٥	Computer memory system
Week ٦	Cache memory principles and structure
Week ٧	**Midterm Exam**
Week ٨	Interleaved memory
Week ٩	Address interleaving and performance model
Week ١٠	Virtual Memory Concept
Week ١١	Paging and Segmentation mechanism
Week ١٢	CPU (Register, Hardware, Micro programmed and I/O) Organization
Week ١٣	Programmed and interrupt I/O
Week ١٤	introduction to parallel processing (SISD, SIMD, MISD, MIMD)
Week ١٥	pipeline structure
Week ١٦	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
	No Labs

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	William stalling, Computer organization & architecture,٢٠٠٣	Yes
Recommended Texts	Daniel. A practical introduction to computer architecture. Springer Science & Business Media, ٢٠٠٩.	No
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (٥٠ - ١٠٠)	**A** - Excellent	امتياز	٩٠ - ١٠٠	Outstanding Performance
	B - Very Good	جيد جدا	٨٠ - ٨٩	Above average with some errors
	C - Good	جيد	٧٠ - ٧٩	Sound work with notable errors
	D - Satisfactory	متوسط	٦٠ - ٦٩	Fair but with major shortcomings
	E - Sufficient	مقبول	٥٠ - ٥٩	Work meets minimum criteria
Fail Group (٠ – ٤٩)	**FX** – Fail	راسب (قيد المعالجة)	(٤٥-٤٩)	More work required but credit awarded
	F – Fail	راسب	(٠-٤٤)	Considerable amount of work required

Note: Marks Decimal places above or below ٠,٥ will be rounded to the higher or lower full mark (for example a mark of ٥٤,٥ will be rounded to ٥٥, whereas a mark of ٥٤,٤ will be rounded to ٥٤. 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	**English language**			**Module Delivery**	
Module Type	S			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	IMA-١٠٣				
ECTS Credits	٢				
SWL (hr/sem)	٤١				
Module Level	٢		**Semester of Delivery**	٢	
Administering Department	CS		**College**	Al-Imam Al-Adham University College	
Module Leader	Farook Nehad Abed		**e-mail**	farookalbadry@imamaladham.edu.iq	
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	١٩/٠١/٢٠٢٥		**Version Number**	١,٠	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	٢
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	• Teaching students to improve their understanding of the English language and to relate the language to computer science concepts. • Develop listening and speaking skills.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Developing the student's ability to use the language in a comprehensive way. • Developing his ability to write scientifically, listen and speak. • Developing his ability to read with correct pronunciation.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Lectures, Practical Exercises, and Assignments

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	١٧	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	٤,٤
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	٣٧	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	٣,٢
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	٤١		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	٣	١٠٪ (١٠)	٢,٦ and ٩,١١	LO #٢, #٦ and #٩, #١١
	Assignments	٢	١٠٪ (١٠)	٣,٥ and ١٠,١٢	LO #٣, #٥ and #١٠, #١٢
	Home Works	٢	١٠٪ (١٠)	٢,٥ and ٨,١١	LO #٢, #٥ and #٨, #١١
	Report	١	١٠٪ (١٠)	١٣	LO #١٣
Summative	**Midterm Exam**	٢hr	١٠٪ (١٠)	٨	LO #٨

assessment	**Final Exam**	٢hr	٥٠٪ (٥٠)	١٦	All
Total assessment			١٠٠٪ (١٠٠ Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week ١	Tenses. Questions, writing informal letter
Week ٢	present tenses. Have/have got
Week ٣	past simple . past continuous have +noun
Week ٤	Count and uncount nouns. Expressions of quantity articles. Writing forms
Week ٥	verb patterns. Future forms . writing a postcard.
Week ٦	writing – describing a place
Week ٧	Midterm Exam
Week ٨	Present perfect.
Week ٩	writing a biography.
Week ١٠	writing a formal letter
Week ١١	Have (got) to
Week ١٢	**conditional clauses. Time clauses preposition+ word writing**
Week ١٣	verb patterns. Used to infinitives..
Week ١٤	formal and informal letters..
Week ١٥	Present perfect.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts	New headway English course by liz and john soars	
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (٥٠ - ١٠٠)	**A** - Excellent	امتياز	٩٠ - ١٠٠	Outstanding Performance
	B - Very Good	جيد جدا	٨٠ - ٨٩	Above average with some errors
	C - Good	جيد	٧٠ - ٧٩	Sound work with notable errors
	D - Satisfactory	متوسط	٦٠ - ٦٩	Fair but with major shortcomings
	E - Sufficient	مقبول	٥٠ - ٥٩	Work meets minimum criteria
Fail Group (٠ – ٤٩)	**FX** – Fail	راسب (قيد المعالجة)	(٤٥-٤٩)	More work required but credit awarded
	F – Fail	راسب	(٠-٤٤)	Considerable amount of work required

Note: Marks Decimal places above or below ٠,٥ will be rounded to the higher or lower full mark (for example a mark of ٥٤,٥ will be rounded to ٥٥, whereas a mark of ٥٤,٤ will be rounded to ٥٤. 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	**Computer Graphics**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**COM-٢٢٢**				
ECTS Credits	٥				
SWL (hr/sem)	١٠٠				
Module Level	٢		**Semester of Delivery**	١	
Administering Department	com		**College**	Alimam Aladham university college	
Module Leader	م.د. همام خالد ياسين م.د. محمد عدنان محمد		**e-mail**	humam.khalid@imamaladham.edu.iq mohammed.adnan@imamaladham.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D	
Module Tutor	Humam Khalid Yaseen Mohammed Adnan Mohammed		**e-mail**	humam.khalid@imamaladham.edu.iq mohammed.adnan@imamaladham.edu.iq	
Peer Reviewer Name	Humam Khalid yaseen Mohammed Adnan Mohammed		**e-mail**	humam.khalid@imamaladham.edu.iq mohammed.adnan@imamaladham.edu.iq	
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	١
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	١-Highlight the student to known between contours computer and graphic computer, recognize the mathematical basics and algorithms applied in the computer. ٢-Design software tools that it help computer graphics apply its and build a simple one that Simulate Computer graphic application, and addition that help to explain the cases in this aspect.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Knowledge to the introduction of computer graphics and applications and also Known the principle of the Vectors, we can plot basic geometric shapes with forms design and Transformation figure (moving shapes and rotation and scaled and shearing figure). Knowledge of clipping operations within the display window and Mapping operation. Then go to ٣D system and know the deal in the previous cases of Transformation with how ways representation ٣D in the computer and plot it into the computer and represent its. And other subject is a curve spline such as: Bezier-Spline, B-Spline, Cubic-Spline.
Indicative Contents المحتويات الإرشادية	١. **Introduction to computer graphics:** Cathode Ray Tube (CRT),Generating color on a RGB monitors, Coordinates system, Raster–can display, Frame Buffer, Scan conversion, Applications of computer graphics ٢. **Vectors**: unit vector, measurement associated with vectors, manipulation vectors, negative vectors and subtracting vectors, scaling Vectors, multiplying vectors uses the "dot Product" & direction Cosine **٣. Lines:** Standard line +DDA+ Bresenham, Rotation **٤. Matrix** **٥. ٣D shapes** ٦. **Project Work:** • Hands-on projects that involve computer graphics

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	١. **Start with Fundamentals:** Begin by introducing the fundamental concepts of computer graphicd. Ensure that students have a strong foundation in these basics before moving on to more complex topics. ٢. **Interactive Lectures:** Use engaging and interactive lectures that involve real-life examples and practical applications of computer graphics. Encourage student participation and questions

	Hands-on Labs: Provide opportunities for students to graph in a laboratory setting. Hands-on experience is invaluable in understanding how graphics on computer looks like **Group Work:** Encourage collaborative group projects where students work together to graph on computer. Group work can stimulate discussion and problem-solving. **Learning strategy:-** ١. **Active Learning:** Engage actively with the subject matter. Solve problems, practice on graphics. ٢. **Regular Practice:** Regularly practice solving graphics problems, to reinforce learning. ٣. **Self-Assessment:** Use self-assessment tools like quizzes, practice exams, and online resources to gauge your understanding and identify areas that need improvement. ٤. **Collaboration:** Collaborate with peers through study groups or project teams. Explaining concepts to others can solidify your own understanding. ٥. **Ask Questions:** Don't hesitate to ask questions during lectures or seek clarification from your instructor or peers. Computer graphics can be challenging, and asking questions is a vital learning strategy. ٦. **Work on Projects:** If your course includes practical projects, take them seriously. Applying what you've learned to real-world projects can deepen your understanding.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	٢	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	١
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	٤٦	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	٤
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	١٢٥		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	٢	١٠٪ (١٠)	٥ and ١٠	LO #١, #٢ and #١٠, #١١
	Assignments	٢	١٠٪ (١٠)	٢ and ١٢	LO #٣, #٤ and #٦, #٧
	Projects / Lab.	١	١٠٪ (١٠)	Continuous	All
	Report	١	١٠٪ (١٠)	١٣	LO #٥, #٨ and #١٠
Summative assessment	Midterm Exam	٢hr	١٠٪ (١٠)	٧	LO #١ - #٧
	Final Exam	٣hr	٥٠٪ (٥٠)	١٦	All
Total assessment			١٠٠٪ (١٠٠ Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week ١	Introduction{Computer Graphics, Cathode Ray Tube (CRT),Generating color on a RGB monitors, Coordinates system, Raster–can display, Frame Buffer, Scan conversion, Applications of computer graphics }
Week ٢	Vectors {unit vector, measurement associated with vectors, manipulation vectors, negative vectors and subtracting vectors, scaling Vectors, multiplying vectors uses the "dot Product" & direction Cosine, "cross product" }
Week ٣	Draw Line {Standard line +DDA+ Bresenham }
Week ٤	Rotation around the main axes as well as rotation on the random axis
Week ٥	Matrix - Transformation٣D.
Week ٦	Parallel (orthogonal) projection + perspective projection .
Week ٧	oblique projection
Week ٨	Mid Exam
Week ٩	Spline Curve (Beazer curve +B-spline)
Week ١٠	Cubic interpolation
Week ١١	٣D shapes (helix, sphere, and ٣D line).
Week ١٢	Finding the normal vector of a plane and finding the equation of surfaces.
Week ١٣	Examination and detection of points belonging to the surface or not.
Week ١٤	Detect visible and hidden surfaces in ٣D
Week ١٥	Generate shadows on ٣ planes + build maps between Window & viewport.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week ١	٣D vectors
Week ٢	٣D graphic representation
Week ٣	٣D graphic representation
Week ٤	Rotation around the main axes as well as rotation on the random axis
Week ٥	Matrix - Transformation٣D.
Week ٦	Parallel (orthogonal) projection + perspective projection
Week ٧	oblique projection
Week ٨	Mid Exam
Week ٩	Spline Curve (Beazer curve +B-spline)
Week ١٠	Cubic interpolation
Week ١١	٣D shapes (helix, sphere, and ٣D line).
Week ١٢	Finding the normal vector of a plane and finding the equation of surfaces.
Week ١٣	Examination and detection of points belonging to the surface or not.
Week ١٤	Detect visible and hidden surfaces in ٣D
Week ١٥	Generate shadows on ٣ planes + build maps between Window & viewport.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• computer graphics mathematics first step, P. A. Egerto and W. S. Hall, ١٩٩٨. • Visual Basic game Programming for teens, Jonathan S. Harboor, ٢٠٠٥ Riškus, "Approximation of a Cubic Bézier Curve by Circular Arcs and Vice Versa", Information Technology and Control, ٢٠٠٦ • Juhász, "Approximating the helix with rational cubic Bézier curves" Computer-Aided Design, ١٩٩٥.	Yes
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (٥٠ - ١٠٠)	**A -** Excellent	امتياز	٩٠ - ١٠٠	Outstanding Performance
	B - Very Good	جيد جدا	٨٠ - ٨٩	Above average with some errors
	C - Good	جيد	٧٠ - ٧٩	Sound work with notable errors
	D - Satisfactory	متوسط	٦٠ - ٦٩	Fair but with major shortcomings
	E - Sufficient	مقبول	٥٠ - ٥٩	Work meets minimum criteria
Fail Group (٠ – ٤٩)	**FX –** Fail	راسب (قيد المعالجة)	(٤٥-٤٩)	More work required but credit awarded
	F – Fail	راسب	(٠-٤٤)	Considerable amount of work required

Note: Marks Decimal places above or below ٠,٥ will be rounded to the higher or lower full mark (for example a mark of ٥٤,٥ will be rounded to ٥٥, whereas a mark of ٥٤,٤ will be rounded to ٥٤. 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	Object-Oriented Program II			**Module Delivery**	
Module Type	**Core**			☒**Theory** ☒**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	COM-٢٢٥				
ECTS Credits	٥				
SWL (hr/sem)	١٢٥				
Module Level	٢		**Semester of Delivery**	٢	
Administering Department	com		**College**	IMA	
Module Leader	Zaineb Riyadh Khalil		**e-mail**	Zainebalani٨١@imamaladham.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	٠١/١٥/٢٠٢٥		**Version Number**	١,٠	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	COM-٢١١	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	١. Introduce the principles of object-oriented programming in a higher-level programming language in c++. ٢. Analyze a problem statement to develop a mental model of objects necessary to create a software architecture ٣. Utilize object-oriented programming to frame software architectures, with care towards separation of concerns and abstraction ٤. Gain skills in designing, and programming software for reuse of code. ٥. Establish development methods in object-oriented programming to qualify students for teaching the language in other settings
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Explain the motivation for and development of object-oriented programming languages. • Produce a set of use cases given a problem statement. • Produce class diagrams, object interaction diagrams and object state transition diagrams for a given problem. • Describe the essential features of an object-oriented programming language. • Produce and/or debug code fragments that illustrate principles of object-oriented software development. • Describe the principles for testing object-oriented software and derive sets of test data given a specification.
Indicative Contents المحتويات الإرشادية	✓ Structured programming ✓ Procedural programming ✓ Abstract data types (ADTs) ✓ Type of variable and range of applicable operations ✓ Use of classes in object-oriented programming ✓ How coupling and cohesion are implemented in OOP ✓ Abstraction and Encapsulation ✓ Data hiding/information hiding ✓ Classes and objects instances

Learning and Teaching Strategies اس رتاتيجيات التعلم والتعليم	
Strategies	There are different teaching and learning activities including lectures and laboratories. The concepts, process, and applications of data science will be discussed in lectures. Students will also learn computer programming knowledge and the skills of manipulating, processing, retrieving, storing, and plotting data. Students will develop small programs and learn different in laboratories.

Student Workload (SWL) الحمل الدرا يس للطالب محسوب لـ ٥١ اسبوعا			
Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل	٦٣	**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	٤
Unstructured SWL (h/sem) الحمل الدرا يس غ رت المنتظم للطالب خلال الفصل	٦٢	**Unstructured SWL (h/w)** الحمل الدرا يس غ رت المنتظم للطالب أسبوعيا	٣
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل	١٢٥		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	٢	١٠٪ (١٠)	٥ and ١٠	LO #١, #٢ and #١٠, #١١
	Assignments	٢	١٠٪ (١٠)	٢ and ١٢	LO #٣, #٤ and #٦, #٧
	Projects / Lab.	١	١٠٪ (١٠)	Continuous	All
	Report	١	١٠٪ (١٠)	١٣	LO #٥, #٨ and #١٠
Summative assessment	**Midterm Exam**	٢hr	١٠٪ (١٠)	٧	LO #١ - #٧
	Final Exam	٣hr	٥٠٪ (٥٠)	١٦	All
Total assessment			١٠٠٪ (١٠٠ Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبو يع النظري	
	Material Covered
Week ١	Overview of Object-Oriented Programming (OOP) principles. Class and object in OOP
Week ٢	Object as Function Arguments, Return Object from Function
Week ٣	Access specifiers: public, private, protected, Operator overloading
Week ٤	Local variable and class variable
Week ٥	Static and Constant Members (Object and Functions)
Week ٦	Constructors: default, parameterized, copy
Week ٧	Constructor overloading, and Destructor
Week ٨	Mid-term exam

Week ٩	Inheritance (definition, Derived and Base class), Constructor Inheritance, protected specifier
Week ١٠	Override Member Functions
Week ١١	Friend Functions and Friend Class
Week ١٢	The **This** Pointer
Week ١٣	Dynamic memory allocation (new/delete in C++)
Week ١٤	Virtual Functions
Week ١٥	Preparatory week before the Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبو يع للمخت.ت	
	Material Covered
Week ١	Lab ١:Implement class with all members are public in C++
Week ٢	Lab ٢: Define a `Person` class with basic attributes (name, age) and methods. write code for
Week ٣	Lab ٣: Write a program to manage student records with class `Students using private members`
Week ٤	Lab ٤: overload function
Week ٥	Lab٥: Implement Static and non-static method.
Week ٦	Lab٦: Implement constructor of type copy
Week ٧	Lab ٧: Create a program demonstrating constructors and destructors in a Bookclass.
Week ٨	Lab ٨: Mid-term exam
Week ٩	Lab ٩: Create a program demonstrating inheritance
Week ١٠	Lab ١٠: implement Override Member Functions
Week ١١	Lab ١١: implement Friend Functions and Friend Class
Week ١٢	Lab ١٢: Create a program demonstrating The **This** Pointer
Week ١٣	Lab ١٣: Implement the **new** and **Delete** operator with objects
Week ١٤	Lab ١٤: implement Virtual Functions
Week ١٥	Prepare for final exam exercises

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Object-oriented programming with C++ by E.Balagurusamy, ٢nd Edition, TMH.	Yes
Recommended Texts	١. Object Oriented Design by Rumbaugh (Pearson publication) ٢. Object-oriented programming in Turbo C++ By Robert Lafore, Galgotia Publication.	No
Websites	https://www.coursera.org	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (٥٠ - ١٠٠)	**A** - Excellent	امتياز	٩٠ - ١٠٠	Outstanding Performance
	B - Very Good	جيد جدا	٨٠ - ٨٩	Above average with some errors
	C - Good	جيد	٧٠ - ٧٩	Sound work with notable errors
	D - Satisfactory	متوسط	٦٠ - ٦٩	Fair but with major shortcomings
	E - Sufficient	مقبول	٥٠ - ٥٩	Work meets minimum criteria
Fail Group (٠ – ٤٩)	**FX** – Fail	راسب (قيد المعالجة)	(٤٥-٤٩)	More work required but credit awarded
	F – Fail	راسب	(٠-٤٤)	Considerable amount of work required

Note: Marks Decimal places above or below ٠,٥ will be rounded to the higher or lower full mark (for example a mark of ٥٤,٥ will be rounded to ٥٥, whereas a mark of ٥٤,٤ will be rounded to ٥٤. 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	**Visual programming**			**Module Delivery**	
Module Type	**Core**			☒**Theory** ☒**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**COM-٢٢٦**				
ECTS Credits	٤				
SWL (hr/sem)	١٠٠				
Module Level	٢		**Semester of Delivery**	٣	
Administering Department	com		**College**	IMA	
Module Leader	*Hiba Hadi fezea*		**e-mail**	hiba.hadi.fezea@imamaladham.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	MA	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	١٨/٠١/٢٠٢٥		**Version Number**	١,٠	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	COM-٢١١	**Semester**	٢
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	• To develop VB applications with a graphic user interface • To use interface components • To display output using VB OptionPane output dialog boxes • To create vb Forms with Frame • To use event-driven programming • To implement vb database programming • This course is a continuation of vb. This course introduces computer programming using the vb programming language Emphasis is placed on event-driven programming methods, including creating and manipulating objects (see contents below). Course Objectives Lab manual, • lab notes and lab exercises are designed to achieve the lab objectives. • Students are expected to read the material as detailed in the text and complete the exercises in lab. • Students are responsible for all material covered in the class.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Students will be able to learn visual programming basics and its components. • Students should gain both a conceptual understanding of specification and GUI design issues and their implementation, and hands-on experience implementing an IDE; • Students should be comfortable using the VB application programming interface to learn about and then to successfully and appropriately use an already-written VB class; • Students should have obtained experience designing, implementing, testing, and debugging graphical user interfaces that respond to user events using VB • Students will be able to learnVB database programming.
Indicative Contents المحتويات الإرشادية	• manual, notes and exercises are designed to achieve the objectives. • Students are expected to read the material as detailed in the text and complete • the exercises in calass • Students are responsible for all material covered in the class.

Learning and Teaching Strategies استراتيجات التعلم والتعليم	
Strategies	١. Automata and Language Theory (٢ Weeks) Key Topics: Finite Automata: Introduce the concepts of Deterministic Finite Automata (DFA) and Non-deterministic Finite Automata (NFA). Discuss their equivalence and applications in recognizing regular languages. Regular Expressions: Teach how regular languages can be described using regular expressions and their equivalence to finite automata. Demonstrate the use of regular expressions in practical applications (e.g., text processing). Push-down Automata (PDA): Introduce PDAs and their relation to context-

	free languages. Discuss the additional power PDAs provide over finite automata. Context-Free Grammars (CFGs): Define CFGs and show their relation to push-down automata. Discuss parsing and language generation. Pumping Lemmas: Teach the pumping lemma for regular languages and context-free languages. Use it to prove that certain languages are not regular or not context-free. Suggested Activities: Problem sets on designing automata and CFGs. Exercises on proving language properties using pumping lemmas. ٢. Computability Theory (٣ Weeks) Key Topics: Turing Machines: Introduce the model of a Turing machine (TM). Discuss its importance in defining computability. Show examples of simple Turing machines. The Church-Turing Thesis: Explain the thesis and its implications regarding the limits of computability. Decidability: Define decidability and introduce decidable and undecidable problems. Discuss examples such as the membership problem for context-free languages. The Halting Problem: Teach the classic proof of the undecidability of the halting problem. Discuss its consequences. Reducibility: Introduce reducibility (e.g., many-one reductions) as a technique for proving undecidability of other problems. The Recursion Theorem: Teach the recursion theorem and its implications in computability. Suggested Activities: Exercises on constructing Turing machines for different computational problems. Proving the undecidability of problems through reductions. ٣. Complexity Theory (٧ Weeks) Key Topics:

Time and Space Complexity: Introduce asymptotic notation and complexity measures (time and space). Discuss complexity classes like linear time, polynomial time, exponential time, etc.

Complexity Classes:

P, NP, NP-complete: Define class P (problems solvable in polynomial time), NP (problems verifiable in polynomial time), and NP-complete problems. Discuss the concept of polynomial-time reductions.

L and NL: Introduce space complexity classes such as L (logarithmic space) and NL (non-deterministic logarithmic space).

PSPACE: Discuss PSPACE, problems solvable in polynomial space, and PSPACE-complete problems.

BPP: Define probabilistic polynomial time and its relevance in randomized algorithms.

IP: Introduce interactive proof systems and the class IP. Explain the significance of results like IP = PSPACE.

Complete Problems: Study examples of NP-complete, PSPACE-complete, and other complete problems.

The P vs NP Problem: Present the P versus NP conjecture and its significance in theoretical computer science.

Quantifiers and Games: Discuss complexity classes using alternating quantifiers and how games can represent complex problems (e.g., two-player games).

Hierarchy Theorems: Explain the time and space hierarchy theorems, showing the existence of problems with increasing complexity.

Provably Hard Problems: Identify and study problems that are provably hard (e.g., EXP-complete problems).

Relativized Computation and Oracles: Introduce the idea of relativization and how it relates to separations of complexity classes.

Probabilistic Computation: Explore the role of randomness in computation.

Interactive Proof Systems: Discuss the theory behind interactive proofs and probabilistic verification.

Suggested Activities:

	Problem sets on proving complexity class membership. Practice with NP-completeness reductions. Discussions on the significance of P vs NP and possible breakthroughs. Suggested Resources: Textbooks: Introduction to the Theory of Computation by Michael Sipser. Computational Complexity: A Modern Approach by Sanjeev Arora and Boaz Barak. Online Tools: Use online simulators for DFA, NFA, PDA, and Turing machines to give students hands-on experience with abstract concepts.

Student Workload (SWL)

الحمل الدرا يس للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل	٦٠	**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	٣,٢
Unstructured SWL (h/sem) الحمل الدرا يس غ رت المنتظم للطالب خلال الفصل	٥٠	**Unstructured SWL (h/w)** الحمل الدرا يس غ رت المنتظم للطالب أسبوعيا	٣,٤
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل	١٠٠		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	٢	١٠٪ (١٠)	٥ and ١٠	LO #١, #٢ and #١٠, #١١
	Assignments	٢	١٠٪ (١٠)	٢ and ١٢	LO #٣, #٤ and #٦, #٧
	Projects / Lab.	١	١٠٪ (١٠)	Continuous	All
	Report	١	١٠٪ (١٠)	١٣	LO #٥, #٨ and #١٠
Summative assessment	**Midterm Exam**	٢hr	٢٠٪ (٢٠)	٧	LO #١ - #٧
	Final Exam	٣hr	٥٠٪ (٥٠)	١٦	All
Total assessment			١٠٠٪ (١٠٠ Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week ١	Introdution to Visual Basics (Visual Basics vs.Vb . NET ,Prerequisites، Microsoft Visual Studio & Visual Basic (.NET Version)
Week ٢	Getting Started with Visual studio
Week ٣	Writing software(identifiers,literals,varibles and constants
Week ٤	Variable Initialization,declaring. Declaring Enumerations, Type of Conversion Functions, Print and Display Constant The Operators,
Week ٥	Working with Controls(Designing the Form)
Week ٦	What is Controls
Week ٧	ListBox , Combo Box
Week ٨	Midterm Exam
Week ٩	Types of Statements (Declaration Statements , Executable Statements ,)
Week ١٠	Loop Statements(For-next statement ,)
Week ١١	Do. Loop Statement
Week ١٢	Decision Statements ,(If … Then … Else Statement , Nested IF), . Select Case Statement,
Week ١٣	Decision Statements If … Then … Else Statement, IIf ( ) Function
Week ١٤	Nested Loops
Week ١٥	Some of Important Functions & Properties & Methods
Week ١٦	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week ١	**Introdution to Visual Basics**
Week ٢	**tools Control and Forms.**
Week ٣	**events and properties ,explorer Project**
Week ٤	**project –Microsoft vb ,make project, save it and its applications**
Week ٥	**exercises and projects Files**
Week ٦	**boxes message boxes Dialogue**
Week ٧	**Basic elements for visual basic statements, Variables, assignment statements.**
Week ٨	**Midterm Exam**
Week ٩	**General view on assignment statement, constants and operations .**
Week ١٠	**variable of astringe Adding**
Week ١١	**Control statements then…If and statements statement**
Week ١٢	**Select, For-next statement,**
Week ١٣	**loop Condition**
Week ١٤	**loop-Nested**
Week ١٥	**Seguences**
Week ١٦	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Introduction to vb Programming, Comprehensive version, Y. Daniel Liang, ٨th Edition	Yes
Recommended Texts		no
Websites	https://ocw.mit.edu/courses/١٨-٤٠٤j-vb Programming -fall-٢٠٢٠/pages/lecture- notes/	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (٥٠ - ١٠٠)	**A** - Excellent	امتياز	٩٠ - ١٠٠	Outstanding Performance
	B - Very Good	جيد جدا	٨٠ - ٨٩	Above average with some errors
	C - Good	جيد	٧٠ - ٧٩	Sound work with notable errors
	D - Satisfactory	متوسط	٦٠ - ٦٩	Fair but with major shortcomings
	E - Sufficient	مقبول	٥٠ - ٥٩	Work meets minimum criteria
Fail Group (٠ – ٤٩)	**FX** – Fail	راسب (قيد المعالجة)	(٤٥-٤٩)	More work required but credit awarded
	F – Fail	راسب	(٠-٤٤)	Considerable amount of work required

Note: Marks Decimal places above or below ٠,٥ will be rounded to the higher or lower full mark (for example a mark of ٥٤,٥ will be rounded to ٥٥, whereas a mark of ٥٤,٤ will be rounded to ٥٤. 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	جرائم نظام البعث في العراق			**Module Delivery**	
Module Type	S			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ImA-٢٠٤				
ECTS Credits	٢,٠٠				
SWL (hr/sem)	٥٠				
Module Level	٢		**Semester of Delivery**	٣	
Administering Department			**College**		
Module Leader	ضياء جاسم محمد		**e-mail**	Dyaa.jasim@imamaladham	
Module Leader's Acad. Title	محاضر		**Module Leader's Qualification**	ماجستير	
Module Tutor			**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**	E-mail	
Scientific Committee Approval Date	١٠/١/٢٠٢٥		**Version Number**	١,٠	

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	None لا احد	**Semester**	
Co-requisites module	None لا احد	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Objectives أهداف المادة الدراسية	تهدف المادة الى تعريف وتوضيح الى الطلبة بالاحداث التي مر بها العراق في الحقبة التي تولى فيها نظام حزب البعث الحكم
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١-التعرف على الجرائم التي ارتكبها نظام حزب البعث والتوعية والتوضيح من مخاطر هذه الجرائم على المجتمع. ٢-توضيح الى الطلبة بابرز االانتهاكات التي ارتكبها نظام حزب البعث للقوانين العراقية ٣-توضيح مدى خطورة الجرائم النفسية واالجتماعية والبيئية التي ارتكبها هذا النظام على المجتمع ٤-اثبات االحداث التي مر بها العراق
Indicative Contents المحتويات الإرشادية	تتناول هذه المادة مفهوم الجرائم واقسامها والجرائم النفسية واالجتماعية والبيئية لنظام البعث

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	هناك العديد من االستراتيجيات التي يمكن استخدامها في تدريس وتعليم مادة جرائم نظام البعث في العراق في الجامعات. وفيما يلي بعض االستراتيجيات التعليمية المشتركة التي يمكن تطبيقها ١-المناقشات الجماعية: ٢-دراسة الحالة: ٣-العروض والمنشورات:

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ٥١ أسبوعا			
Structured SWL (h/sem)		**Structured SWL (h/w)**	

الحمل الدراسي المنتظم للطالب خالل الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خالل الفصل		**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خالل الفصل	٥٠		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**				
	Assignments				
Summative assessment	**Midterm Exam**				
	Final Exam				
Total assessment					

Delivery Plan (Weekly Syllabus)

المنهاج االسبوعي النظري

	Material Covered
Week ١	جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥/مفهوم الجرائم وأقسامها
Week ٢	انواع الجرائم الدولية/القرارات الصادرة من المحكمة الجنائية العليا
Week ٣	الجرائم النفسية واالجتماعية
Week ٤	اليات الجرائم النفسية
Week ٥	أثار الجرائم النفسية، وأبرز انتهاكات النظام البعثي في العراق
Week ٦	الجرائم االجتماعية
Week ٧	عسكرة المجتمع
Week ٨	بعض قرارات االنتهاكات السياسية والعسكرية لنظام البعث
Week ٩	الجرائم البيئية لنظام البعث في العراق/التلوث الحربي واإلشعاعي وانفجار االلغام
Week ١٠	تدمير المدن والقرى سياسة أألارض المحروقة
Week ١١	تجفيف أألاهوار
Week ١٢	تجريف بساتين النخيل واألشجار والمزروعات
Week ١٣	جرائم المقابر الجماعية

Week ١٤	احداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي في العراق
Week ١٥	التوقيت الزمني لمقابر الإبادة الجماعية في العراق
Week ١٦	مراجعة للمنهج قبل الامتحان النهائي

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	مقرر دراسي للجامعات الحكومية والاهلية صادر عن وزارة التعليم العالي والبحث العلمي	لا
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (٥٠ - ١٠٠)	**A** - Excellent	امتياز	٩٠ - ١٠٠	الاداء المتميز
	B - Very Good	جيد جدا	٨٠ - ٨٩	فوق المتوسط
	C - Good	جيد	٧٠ - ٧٩	عمل سليم مع وجود اخطاء ملحوظة
	D - Satisfactory	متوسط	٦٠ - ٦٩	عادل
	E - Sufficient	مقبول	٥٠ - ٥٩	العمل يلبي الحد الادنى من المعايير
Fail Group (٠ – ٤٩)	**FX –** Fail	راسب قيد المعالجة	(٤٥-٤٩)	مطلوب المزيد من الجهد
	F – Fail	راسب	(٠-٤٤)	مطلوب المزيد من الجهد

ملاحظة: سيتم تقريب الاماكن العشرية للعلامات اعلى او اسفل الى العلامة الكاملة الاعلى او الادنى(على سبيل المثال سيتم تقريب العلامة٥٤,٥ الى٥٥ بينما سيتم تقريب العلامة ١ الى ١ لكون الجامعة تتبع سياسة عدم التسامح مع حالات الفشل في اجتياز الاختبار لذا فان التعديل الوحيدعلى الدرجات الممنوحة من قبل المصححين الاصليين سيكون التقريب التلقائي الموضح اعلاه.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Introduction to python**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **L Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**COM-٢٢٤**				
ECTS Credits	٤				
SWL (hr/sem)	١٠٠				
Module Level	٢		**Semester of Delivery**	٣	
Administering Department	com		**College**	IMA	
Module Leader	*Raya mohammed mahmood*		**e-mail**	raya.mohammed@imamaladham.edu.iq	
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	٠٤/٠١/٢٠٢٥		**Version Number**	١,٠	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	By the end of this module, learners will be able to: ١- Understand Python and Its Applications. ٢- Understand Python Syntax and Structure with Variables, Data Types and Expressions. ٣- Implement Control Flow Structures, Data Structures and Functions. ٤- Perform Basic File and Exceptions Handling. ٥- Understand the Basics of Modules and Libraries. ٦- Apply Python in Real-World Scenarios.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١- Describe Python and Its Uses ٢- Set Up and Use a Python Development Environment ٣- Demonstrate Understanding of Python Syntax and Structure ٤- Utilize Variables and Data Types Effectively ٥- Apply Operators and Expressions in Python ٦- Implement Control Flow Statements ٧- Use Data Structures for Storing and Manipulating Data ٨- Define and Use Functions ٩- Handle Errors and Exceptions ١٠- Perform File Handling Operations ١١- Utilize Modules and Libraries ١٢- Solve Simple Programming Problems Using Python ١٣- Develop small Python programs to automate tasks and process data. ١٤- Apply problem-solving techniques using Python programming constructs.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ١- Introduction to Python & Environment Setup ٢- Python Syntax and Basic Operations ٣- Operators and Expressions ٤- Control Flow – Conditional Statements ٥- Control Flow – Loops and Iterations ٦- Working with Strings and String Manipulation ٧- Lists, Tuples, and Sets ٨- Dictionaries and Data Structures ٩- Functions and Modular Programming ١٠- Exception Handling and Debugging ١١- File Handling in Python ١٢- Introduction to Object-Oriented Programming (OOP) ١٣- Introduction to Libraries and Modules ١٤- Real-World Python Applications & Mini Project

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The Introduction to Python module will adopt a learner-centered, hands-on approach to ensure engagement, skill acquisition, and practical application. The teaching strategy will incorporate various methods to enhance comprehension, retention, and problem-solving skills. These strategies includes: • Engaging – Interactive and hands-on approach. • Practical – Real-world projects for deeper understanding. • Collaborative – Encourages teamwork and peer learning. • Career-Oriented – Links Python to real-world applications.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	٧٨	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	٥,٢
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	٤٧	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	٣,١
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	١٢٥		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	٣	١٥٪ (١٥)	٤ ,٧,١٢	LO #١, #٢ ,#٣ LO #٤,#٥, #٦ and LO#٩,#١٠, #١١
	Assignments	١	٥٪ (٥)	٩	LO #٧, #٨
	Projects / Lab.	١	١٠٪ (١٠)	١٤	All
	Report				
Summative assessment	**Midterm Exam**	٢hr	٢٠٪ (٢٠)	٨	LO #١ - #٧
	Final Exam	٣hr	٥٠٪ (٥٠)	١٦	All
Total assessment			١٠٠٪ (١٠٠ Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week ١	Introduction to Python • What is Python? • Installing Python and setting up the environment (IDLE, VS Code, Jupyter Notebook). • Writing and running your first Python program. • Python syntax and indentation. • Variables and data types (int, float, str, bool).
Week ٢	Input/Output and Basic Operators • Taking user input using input(). • Displaying output using print(). • Arithmetic operators (+, -, *, /, %, **). • Comparison operators (==, !=, >, <, >=, <=). • Logical operators (and, or, not).
Week ٣	Control Flow • Conditional statements (if, elif, else). • Nested conditions. • Loops (for, while). • Loop control statements (break, continue, pass).
Week ٤	Functions • Defining and calling functions. • Function arguments and return values. • Default arguments and keyword arguments. • Variable scope (local vs global).
Week ٥	Data Structures - Lists • Introduction to lists. • List operations (indexing, slicing, appending, removing). • List methods (append(), remove(), sort(), reverse()). • List comprehensions.
Week ٦	Data Structures - Tuples and Sets • Introduction to tuples (immutable sequences). • Tuple operations (indexing, slicing, unpacking). • Introduction to sets (unique elements). • Set operations (union, intersection, difference).
Week ٧	Data Structures - Dictionaries • Introduction to dictionaries (key-value pairs). • Dictionary operations (adding, updating, deleting). • Dictionary methods (keys(), values(), items()).

Week ٨	**Midterm Exam**
Week ٩	Strings and File Handling • String operations (concatenation, slicing, formatting). • String methods (split(), join(), replace(), strip()). • Reading from and writing to files.
Week ١٠	Error Handling and Debugging • Types of errors (syntax errors, runtime errors, logical errors). • Handling exceptions using try, except, finally. • Debugging techniques.
Week ١١	Modules and Packages • Importing modules (math, random, datetime). • Creating and using custom modules. • Installing and using third-party packages with pip
Week ١٢	Object-Oriented Programming (OOP) • Introduction to OOP (classes and objects). • Attributes and methods. • Constructors (__init__ method). • Inheritance and polymorphism.
Week ١٣	Working with Libraries • Introduction to popular Python libraries (numpy, pandas, matplotlib). • Data manipulation with pandas. • Data visualization with matplotlib.
Week ١٤	Introduction to Web Scraping • Basics of web scraping. • Using requests and BeautifulSoup libraries. • Extracting data from websites.
Week ١٥	Final Project and Review • Recap of all topics covered. • Guidelines for the final project. • Q&A session.
Week ١٦	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week ١	• Installing python • Write a program to print "Hello, World!". • Create variables and perform basic arithmetic operations.
Week ٢	• Write a program to calculate the area of a rectangle. • Create a simple calculator.

Week ٣	• Write a program to check if a number is even or odd. • Create a multiplication table using loops.
Week ٤	• Write a function to calculate the factorial of a number. • Create a function to check if a string is a palindrome.
Week ٥	• Write a program to find the largest number in a list. • Create a list of squares using list comprehension.
Week ٦	• Write a program to count the frequency of elements in a tuple. • Perform set operations on two sets.
Week ٧	• Write a program to create a phonebook using dictionaries. • Count the frequency of words in a text using a dictionary.
Week ٨	• Midterm exam
Week ٩	• Write a program to reverse a string. • Read a text file and count the number of lines. • Write a program to handle division by zero.
Week ١٠	• Debug a program with logical errors. • Write a program to generate random numbers. • Create a custom module for mathematical operations.
Week ١١	• Create a class to represent a bank account. • Implement inheritance with a base class Animal and derived classes Dog and Cat.
Week ١٢	• Perform basic data analysis using pandas. • Create a bar chart using matplotlib.
Week ١٣	• Write a program to scrape headlines from a news website.
Week ١٤	• Build a small application (e.g., a to-do list, a quiz game, or a weather app).
Week ١٥	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	"Introduction to Python" by Brian Gregor.	Yes
Recommended Texts	"Python Crash Course" by Eric Matthes. "Automate the Boring Stuff with Python" by Al Sweigart.	no
Websites	١. Online Platforms: ○ Python.org ○ Real Python ○ W٣Schools Python Tutorial ٢. Practice Platforms: ○ LeetCode ○ HackerRank	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (٥٠ - ١٠٠)	**A -** Excellent	امتياز	٩٠ - ١٠٠	Outstanding Performance
	B - Very Good	جيد جدا	٨٠ - ٨٩	Above average with some errors
	C - Good	جيد	٧٠ - ٧٩	Sound work with notable errors
	D - Satisfactory	متوسط	٦٠ - ٦٩	Fair but with major shortcomings
	E - Sufficient	مقبول	٥٠ - ٥٩	Work meets minimum criteria
Fail Group (٠ – ٤٩)	**FX –** Fail	راسب (قيد المعالجة)	(٤٥-٤٩)	More work required but credit awarded
	F – Fail	راسب	(٠-٤٤)	Considerable amount of work required

Note: Marks Decimal places above or below ٠,٥ will be rounded to the higher or lower full mark (for example a mark of ٥٤,٥ will be rounded to ٥٥, whereas a mark of ٥٤,٤ will be rounded to ٥٤. 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	**Algorithms Design and Analysis**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**COM-٢١٣**				
ECTS Credits	٤				
SWL (hr/sem)	١٠٠				
Module Level	٢		**Semester of Delivery**	٣	
Administering Department	com		**College**	IMA	
Module Leader	*Bashar Ibrahim Hameed*		**e-mail**	bashar_ibrahim@imamaladham.edu.iq	
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	٠٤/٠٩/٢٠٢٤		**Version Number**	١,٠	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	COM-١٢٢	**Semester**	١
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	١. Enable the student to be able to identify, the best way to design and Analyze an algorithm. ٢. Study the basic types of algorithms to solve a group of known problems with their Practical application. ٣. Enable the student to know the Basic methods of how to analyze complexity of algorithms.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١- Enable the student to Know and understand the theoretical ٢- Principles of algorithms and calculate their complexity. ٣- ٢. Enable the student to understand the correct analysis ٤- Methods for the complexity of algorithms. ٥- ٣. Enable the student to handle cases of high complexity to ٦- achieve optimization, ٧- ٤. Motivate the student to practically apply the algorithm and use ٨- it to solve a set of problems.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Concepts and properties of algorithms - Differences among best, expected, and worst case behaviors of an algorithm - Computing by calculating how programs are evaluated. - Rule of algorithms in problem solving process - Problem solving strategies, Iteration and recursive traversal of data structure, Modularity - implementation of algorithms - Algorithms strategy • ٤-color mapping • Traveling Salesman • Shortest Path • Brute force algorithm • Greedy algorithm • Divide and conquer • Recursive backtracking • Dynamic programming • Network flow • Branch and bound • heuristics • reduction : transform and conquer • Approximation Algorithms (Euclidian tour, Vertex cover, Knapsack). algorithms efficiency (e.g. operation count). - fundamental design concepts and principals • abstraction • decomposition • encapsulation

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

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	٧٨	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	٥,٢
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	٤٧	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	٣,١
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	١٢٥		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	٢	١٠٪ (١٠)	٥ and ١٠	LO #١, #٢ and #١٠, #١١
	Assignments	٢	١٠٪ (١٠)	٢ and ١٢	LO #٣, #٤ and #٦, #٧
	Projects / Lab.				
	Report	١	١٠٪ (١٠)	١٣	LO #٥, #٨ and #١٠
Summative assessment	**Midterm Exam**	٢hr	٢٠٪ (٢٠)	٧	LO #١ - #٧
	Final Exam	٣hr	٥٠٪ (٥٠)	١٦	All
Total assessment			١٠٠٪ (١٠٠ Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week ١	Concepts and properties of algorithms
Week ٢	Differences among best, expected, and worst-case behaviors of an algorithm
Week ٣	Computing by calculating how programs are evaluated. ● Rule of algorithms in problem solving process
Week ٤	Problem solving strategies ●Iteration and recursive traversal of data structure ●Modularity
Week ٥	●implementation of algorithms ●Algorithms strategy ● ٤-color mapping
Week ٦	● Traveling Salesman ●Shortest Path
Week ٧	● Brute force algorithm ●Greedy algorithm
Week ٨	**Midterm Exam**
Week ٩	●Divide and conquer ●Recursive backtracking
Week ١٠	●Dynamic programming ●Network flow
Week ١١	●Branch and bound ●heuristics
Week ١٢	reduction : transform and conquer
Week ١٣	Approximation Algorithms (Euclidian tour, Vertex cover, Knapsack).
Week ١٤	algorithms efficiency (e.g. operation count).
Week ١٥	fundamental design concepts and principals • abstraction • decomposition • encapsulation
Week ١٦	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week ١	What are data type in C++
Week ٢	pattern in C++
Week ٣	Solve any number pattern

Week ٤	Solve any number pattern
Week ٥	Solve any character pattern
Week ٦	Solve any character pattern
Week ٧	C++ lambda function
Week ٨	Python lambda function
Week ٩	recursive function
Week ١٠	recursive function
Week ١١	Greedy algorithm
Week ١٢	Greedy algorithm
Week ١٣	Divide and conquer algorithm
Week ١٤	Divide and conquer algorithm
Week ١٥	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• Levitin, Anany. Introduction to the design & analysis of algorithms. Pearson Education India, ٢٠٠٧. ٣rd edition. • Horowitz, Ellis. Fundamentals of computer algorithms. Galgotia publications • Algorithm Design - John Kleinberg - Éva Tardos	Yes
Recommended Texts		no
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (٥٠ - ١٠٠)	**A -** Excellent	امتياز	٩٠ - ١٠٠	Outstanding Performance
	B - Very Good	جيد جدا	٨٠ - ٨٩	Above average with some errors
	C - Good	جيد	٧٠ - ٧٩	Sound work with notable errors
	D - Satisfactory	متوسط	٦٠ - ٦٩	Fair but with major shortcomings

	E - Sufficient	مقبول	٥٠ - ٥٩	Work meets minimum criteria
Fail Group (٠ – ٤٩)	**FX –** Fail	راسب (قيد المعالجة)	(٤٥-٤٩)	More work required but credit awarded
	F – Fail	راسب	(٠-٤٤)	Considerable amount of work required

Note: Marks Decimal places above or below ٠,٥ will be rounded to the higher or lower full mark (for example a mark of ٥٤,٥ will be rounded to ٥٥, whereas a mark of ٥٤,٤ will be rounded to ٥٤. 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.