### Republic of Iraq Ministry of Higher Education & Scientific Research Supervision and Scientific Evaluation Directorate Quality Assurance and Academic Accreditation



## Academic Program Specification Form For The Colleges for the Academic Year 2023-2024 First Stage (Bologna Track)

University: Anbar

College: Computer Science and Information Technology

Department: Computer Networks Systems

Date Of Form Completion: 6/3/2024-

Dean's Name

Date:/

Signature

Dean's Assistant For

Scientific Affairs

Date:

Signature

Head of Department of

Quality Assurance and

Academic

Date:

Signature

Quality Assurance And University Performance ManagerDate:/

Signature

#### TEMPLATE FOR PROGRAMME SPECIFICATION

#### HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

#### PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	University of Anbar
2. University Department/Centre	College of Computer Science and Information Technology/Department of Computer Network Systems
3. Programme Title	Computer network systems
4. Title of Final Award	Bachelor of Computer Networks Systems
5. Modes of Attendance offered	Bologna Process
6. Accreditation	
7. Other external influences	
8. Date of production/revision of this specification	1 / 3 / 2024

### 9. Aims of the Programme

The objectives of the Computer Networking Department at the College of Computer Science and Information Technology vary based on the institution's specific goals and priorities. Below are some objectives of the Computer Networking program that the department seeks to achieve:

 Providing comprehensive networking education: The department should aim to offer a comprehensive curriculum covering both fundamental and advanced concepts in computer networking. This includes topics such as network protocols, network security, routing, switching, wireless networks, network management, and emerging networking technologies.

- 2. Developing practical skills: The department should focus on equipping students with practical skills applicable to real-world communication scenarios. Practical training should include configuring and managing network devices, troubleshooting network issues, designing network infrastructures, and implementing network security measures.
- 3. Keeping pace with industry trends and developments: The field of networking evolves rapidly, with new technologies, protocols, and trends emerging regularly. The networking department should strive to keep up with these developments by integrating relevant and advanced topics into the curriculum. This ensures that students are equipped with the knowledge and skills needed to adapt to the constantly changing networking landscape.
- 4. Enhancing teamwork and collaboration: Networking specialists often work in teams and collaborate with colleagues to design, implement, and manage networks. The program should emphasize the importance of teamwork and provide opportunities for students to work collaboratively on networking projects and assignments. This helps develop their interpersonal skills and communication abilities, as well as their effectiveness in a team-based environment.
- 5. Preparing students for industry certifications: Many networking professionals pursue industry certifications to validate their skills and enhance their career prospects. The networking department should align the curriculum with relevant industry certifications, such as Cisco Certified Network Associate (CCNA) or CompTIA Network+, and provide resources and guidance to help students prepare for these certifications.
- 6. Ensuring high-quality teaching and learning: The department should prioritize the recruitment and professional development of skilled faculty members with both professional experience and teaching expertise. Regular assessments and feedback mechanisms should be implemented to ensure the quality of teaching and learning experiences. Additionally, the program should leverage modern educational technologies and resources to enhance the learning environment.
- 7. Supporting ongoing skills upgrading: Networking professionals need to continuously update their knowledge and skills to keep pace with developments in the field. The department should encourage and support lifelong learning for students by providing opportunities for professional development, such as continuing education programs, workshops, and seminars.

### 10. Learning Outcomes, Teaching, Learning and Assessment Methods

The learning outcomes of students in the Computer Networking Department at the College of Computer Science and Information Technology vary depending on the specific curriculum and institutional goals. Below are the learning outcomes associated with the Computer Networking department:

- 1. Understanding Networking Concepts: Students should demonstrate understanding of fundamental networking concepts, including network architecture, protocols, and technologies.
- 2. Network Implementation: Students should be able to implement computer networks, considering factors such as scalability, security, reliability, and performance.
- 3. Network Administration and Management: Students should acquire the necessary skills to effectively administer and manage network systems, including tasks such as configuring network devices, troubleshooting network issues, and ensuring network security.
- 4. Network Security: Students should understand the principles and techniques of network security, including authentication, access control, encryption, firewalls, intrusion detection, and prevention systems.
- 5. Network Protocols and Services: Students should have a comprehensive understanding of various network protocols and services, such as TCP/IP, DNS, DHCP, VPN, and others, and be able to apply them effectively in network configurations.
- 6. Network Performance Optimization: Students should learn network performance optimization techniques, including analyzing and improving network latency, bandwidth utilization, and response times.
- 7. Collaboration and Communication: Students should develop effective communication and collaboration skills to work in multidisciplinary teams, interact with clients or users, and provide technical information clearly and professionally.
- 8. Ethical and Legal Considerations: Students should understand the ethical and legal issues related to networks, including privacy, intellectual property, cybercrimes, and compliance with industry regulations.
- 9. Professional Development: Students should develop a commitment to continuous learning and professional growth, keeping pace with developments in networking technologies and industry trends.

Program Description					
Program code:	BSc-MECH	ECTS	240		
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time		

### **Teaching Staff**

No.	Full Name	Degree	Field	Academic	Email	Mobile no.
1	A1 1N 'D 1'1	DI D	C	Title	1'1' @ 1	07022526040
1.	Ahmed Nouri Rashid	PhD	Computer	Assistant	rashidisgr@uoanbar.	07832526040
2.	Mustafa Khattab Mujall Ali Al-	PhD	Engineering Computer Science	Professor Assistant	edu.iq co.khattab.alheeti@u	07806443593
۷.	Heiti	FIID	Computer Science	Professor	oanbar.edu.iq	07600443393
3.	Salah Awad Salman Al-	PhD	Computer	Professor	salah_eng1996@uoa	07803759524
٥.	Eisaawi	The	Engineering	110103301	nbar.edu.iq	07003737324
4.	Sufian Tayeh Faraj Qit'an	PhD	Telecommunication	Professor	sufyan.aljanabi@uoa	07808655508
	Al-Janabi		Engineering		nbar.edu.iq	
5.	Ali Maki Sghayyar Saleh	PhD	Computer Science	Professor	ali@uoanbar.edu.iq	07824937080
6.	Abdul Kareem Abdul	PhD	Computer	Assistant	abdulkareem.alaloos	07808923889
	Hameed Najm Abdullah		Engineering	Professor	y@uoanbar.edu.iq	
7.	Saad Ibrahim Ahmed	PhD	Islamic Law	Assistant	Saad.ibrahim@uonb	07903711576
	Hussein			Professor	ar.edu.iq	
8.	Omar Munther Hussein	PhD	Computer Science	Assistant	omar.alokashi@uoan	07803387690
	Smeit	DI D		Professor	bar.edu.iq	07022200624
9.	Ismael Taha Ahmed Darg	PhD	Computer Science	Assistant	ismail.taha@uoanbar	07822280624
10.	Cymagya Abdyllab Hamad	PhD	Computer Science	Professor Lecturer	.edu.iq sumayah.hamad@uo	07807987722
10.	Sumaya Abdullah Hamad Shukr	PhD	Computer Science	Lecturer	anbar.edu.iq	0/80/98//22
11.	Ahmed Mahdi Jabeer	PhD	Computer Science	Lecturer	ahmed.mahdi@uoan	07727755234
11.	Jasim	The	Computer Science	Lecturer	bar.edu.iq	07727733234
12.	Sinan Ali Abd Dali	PhD	Computer Science	Lecturer	senan.ali@uoanbar.e	07830946644
			1		du.iq	
13.	Khatam Abdul Basit	Master's	Computer Science	Assistant	khitam.abdulbasit@	07826050068
	Muhammad Khalil			Lecturer	uoanbar.edu.iq	
14.	Mohammed Shihab	Master's	Computer Science	Assistant	Mahmmed.shiab@u	07703678476
	Muayyad			Lecturer	oanbar.edu.iq	
15.	Saif Saad Hameed Fataih	Master's	Computer	Lecturer	dove_white84@uoan	07901747315
1.0	T T 1' M 1 1'	N/L / L	Engineering	T	bar.edu.iq	07022100210
16.	Iman Turki Mahdi Salman	Master's	Computer Science	Lecturer	maymoonat@uoanba r.edu.iq	07822108210
17.	Fouad Hamadi Awad	Master's	Computer Science	Lecturer	fouad.hammadi@uo	07813533384
17.	Ghadban	Waster's	Computer Science	Lecturer	anbar.edu.iq	07013333304
18.	Sadeq Qais Abdul	Master's	Computer Science	Assistant	co.sedeikaldossary@	07821512233
	Rahman Duleimi			Lecturer	uoanbar.edu.iq	
19.	Adi Abd Hazem Ahmed	Master's	Management and	Assistant	oda.abid@uoanbar.e	07817823146
			Economics	Lecturer	du.iq	
20.	Taysir Ahmed Yassin	Master's	Mechanical	Assistant	taisir.ahmed@uoanb	07903468936
	Dawood		Engineering	Lecturer	ar.edu.iq	
21.	Dania Abdul Qahar	Master's	Computer Science	Assistant	dan14c1001@uoanb	0790344888
	Shakir Mahmoud			Lecturer	ar.edu.iq	

### Degree accreditation and GPA

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

Number 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.



وزارة التعليم العاليي والبحث العلمي جامسعسة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information						
	معلومات المادة الدراسية					
Module Title		C++I		Mod	ule Delivery	
Module Type		Core			☑ Theory	
Module Code		NSCC107		□ Lecture ☑ Lab		
ECTS Credits		5			☐ Tutorial	
SWL (hr/sem)	125				☐ Practical ☐ Seminar	
Module Level		1	Semester of Delivery			
Administering Department		NSD	College	CSIT		
Module Leader			e-mail			
Module Leader's	Acad. Title		Module Lea	der's Qı	ualification	
Module Tutor		e-mail				
Peer Reviewer Name		e-mail				
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Modu	Module Aims, Learning Outcomes and Indicative Contents				
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية				
Module Aims	The course aims to introduce students to the fundamentals of programming using the				
أهداف المادة الدراسية	C++ language. Students learn programming concepts such as variables, data types, control structures, functions, and objects.				
Module Learning					
Outcomes	Develop proficiency in the C++ programming language, including a strong understanding of its syntax, semantics, data types, control structures, functions, and object-oriented programming concepts.				
مخرجات التعلم للمادة الدراسية					
	Introduction to C++ Programming				
	Object-Oriented Programming (OOP) in C++				
Indicative Contents	C++ Standard Library				
المحتويات الإرشادية	Memory Management in C++				
	Data Structures and Algorithms in C++				
	C++ Application Development				

	Learning and Teaching Strategies		
استر اتيجيات التعلم والتعليم			
	Conceptual Understanding:		
	Hands-on Practice		
Strategies	Code Review and Feedback		
	Problem-Solving Exercises		

Student Workload (SWL) الحمل الدراسي للطالب				
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدر اسي المنتظم للطالب أسبو عيا	4.2	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125			



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#### **Module Evaluation**

راسية	الدر	مادة	الد	تقديد
**				4*4*

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

	Delivery Plan (Weekly Syllabus)			
	المنهاج الاسبوعي النظري			
	Material Covered			
Week 1	Overview to Programming Language			
Week 2	Algorithms and Flow Charts			
Week 3	C++ program structure			
Week 4	Data Types and variables			
Week 5	Input/ output statements			
Week 6	Unary Minus Increment and /decrement Operators.			
Week 7	Assignment , Relational ,Logical, Bitwise and Logical operations.			
Week 8	Control structures			
Week 9	Conditional statements: If and if-else			
Week 10	Switch statements			
Week 11	The Switch Selection Statement			
Week 12	Looping statements			
Week 13	Do/While Statement			
Week 14	For Statement			
Week 15	Break and Continue Control Statements Nested Loops			
Week 16	Final Exam			

Week 7



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	Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر		
	Material Covered		
Week 1	Arrays and strings in C++		
Week 2	Functions: defining, calling, and passing arguments		
Week 3	Pointers and memory management in C++		
Week 4	Dynamic memory allocation with new and delete operators		
Week 5	Classes and objects in C++		
Week 6	Operator overloading in C++		

Standard Template Library (STL) in C++

Learning and Teaching Resources					
مصادر التعلم والتدريس					
	Text	Available in the			
		Library?			
Required Texts	K. Venugopal and Raj Buyya, <i>Mastering C++</i> , McGraw Hill				
nequired rexis	Education, 1997.				
Recommended Texts					
	https://www.learncpp.com/				
Websites	https://www.w3schools.com/CPP/default.asp				



وزارة التعليم العالي والبحث العلمي جامعة الأنبار كلية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Grading Scheme مخطط الدرجات						
Group	Group Grade التقدير Marks (%) Definition					
	A - Excellent	امتياز	90 - 100	Outstanding Performance		
Sugges Croup	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors		
Success Group (50 - 100)	<b>C</b> - Good	ختر	70 - 79	Sound work with notable errors		
(30 - 100)	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings		
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria		
Fail Group	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded		
(0 – 49)	<b>F</b> – 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.



وزارة التعليم العالي والبحث العلمي جامسعية الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information							
معلومات المادة الدراسية							
Module Title	El	S	Modu	ule Delivery			
Module Type				☑ Theory			
Module Code		NSCC114			☐ Lecture		
ECTS Credits	5				☑ Lab		
SWL (hr/sem)				<ul><li>□ Tutorial</li><li>□ Practical</li><li>□ Seminar</li></ul>			
Module Level		First Class	Semester of Delivery				
Administering Dep	partment	NSD	College	CSIT			
Module Leader			e-mail				
Module Leader's Acad. Title			Module Lea	ıder's Qı	ualification		
Module Tutor			e-mail				
Peer Reviewer Name			e-mail				
Scientific Committee Approval Date			Version Nu	mber			

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



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Module Aims, Learning Outcomes and Indicative Contents					
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية				
Module Aims أهداف المادة الدراسية	Introduce students to the fundamental concepts of electrical circuits, including voltage, current, resistance, and power. Develop a solid understanding of Ohm's Law and basic circuit analysis techniques.				
Module Learning Outcomes  مخرجات التعلم للمادة الدراسية	Demonstrate a clear understanding of fundamental concepts in electrical circuits, including voltage, current, resistance, power, and energy. Apply Ohm's Law to analyze simple circuits.				
Indicative Contents المحتويات الإرشادية	Introduction to Electrical Circuits  DC Circuit Analysis  AC Circuit Analysis  Circuit Theorems and Network Analysis  Operational Amplifiers (Op-Amps)  Three-Phase Circuits  Network analysis techniques				

Learning and Teaching Strategies				
استراتيجيات التعلم والتعليم				
Strategies	Conceptual Understanding Active Learning Problem-Solving Approach Laboratory Experience Computer-Aided Analysis Collaborative Learning Visualization Techniques Progress Monitoring			



### رزارة التعليم العالي والبحث العلمي جامسعية الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

COM CIENTALING CICIEMO					
Student Workload (SWL)					
الحمل الدر اسي للطالب					
Structured SWL (h/sem)	63	Structured SWL (h/w)	4.2		
الحمل الدراسي المنتظم للطالب خلال الفصل	05	الحمل الدراسي المنتظم للطالب أسبوعيا	4.2		
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4.1		
الحمل الدراسي غير المنتظم للطالب خلال الفصل	02	الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1		
Total SWL (h/sem)					
الحمل الدراسي الكلي للطالب خلال الفصل	123				

### **Module Evaluation**

تقييم المادة الدراسية

	1 2					
		Time/Nu	Weight (Marks)	Week Due	Relevant Learning	
		mber	weight (warks)	week Due	Outcome	
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5	
Formative	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5	
assessment	Projects / Lab.	1	10% (10)	Continuous		
	Report	1	10% (10)	13	LO # 5,8 and IO	
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6	
assessment	Final Exam	3 hr	60% (60)	16	All	
Total assessment						

Delivery Plan (Weekly Syllabus)			
المنهاج الاسبوعي النظري			
	Material Covered		
Week 1	Electric Circuits: Components, Types, and Related Concepts		
Week 2	Parallel and Series-Parallel Configurations		
Week 3	Full-Wave Rectification		
Week 4	Clampers and Clippers		
Week 5	Transistor Construction and Transistor Operation		
Week 6	Common-Base Configuration and Common-Emitter		
Week 7	Operating Point and Fixed-Bias Circuit		
Week 8	Voltage-Divider Bias:		
vveek o	-DC Bias with Voltage Feedback		



## وزارة التعليم العالي والبحث العلمي جامعة الانبار كالمعلوم الحاسوب وتكنولوجيا المعلومات قسمة شبكات الحاسوب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

	- A bipolar Junction Transistor Constructed - PNP Transistor
Week 9	Construction and characteristics of JFETs -Depletion-Type MOSFET
	Semiconductor Field-Effect Transistor (MOSFET)
Week 10	-Virtual Machine Android App (V MOS)
	-Complementary Metal-Oxide-Semiconductor ( CMOS)
Week 11	Transition and Diffusion Capacitance- Reverse Recovery Time
Week 12	Diode Equivalent Circuit-Extrinsic Semiconductors(p-n Junction)
Week 13	Energy level: Definition, Diagram, & Facts
Week 14	Amplification in AC Domain
Week 15	A bipolar Junction Transistor- BJT Modeling
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)				
المنهاج الاسبوعي للمختبر				
	Material Covered			
Week 1	Introduction to laboratory equipment and safety procedures			
Week 2	Familiarization with basic electrical components: resistors, capacitors, and inductors			
Week 3	Measurement techniques: using multimeters and oscilloscopes			
Week 4	Circuit analysis techniques: Ohm's Law, Kirchhoff's Laws			
Week 5	Node voltage method and mesh current method for circuit analysis			
Week 6	Power calculations in DC circuits			
Week 7	Laboratory experiments on DC circuit analysis			

Learning and Teaching Resources				
مصادر التعلم والتدريس				
	Text	Available in the Library?		



وزارة التعليم العاليي والبحث العلمي جامسعية الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسه ب

### DEPT. COMPUTER NETWORKS SYSTEMS

Poguired Toyte	Integrated Electronics Analog and Digital & System.	
Required Texts	Author – Jacob Millman. Christos C. Halkias	
Recommended Texts		
Websites		

Grading Scheme							
	مخطط الدرجات						
Group	Grade	التقدير	Marks (%)	Definition			
	A - Excellent	امتياز	90 - 100	Outstanding Performance			
Success Cream	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors			
Success Group (50 - 100)	<b>C</b> - Good	ختر	70 - 79	Sound work with notable errors			
(30 - 100)	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings			
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria			
Fail Group	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded			
(0 – 49) 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.



وزارة التعليم العاليي والبحث العلمي جامسعسة الأنبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية						
Module Title			Modu	ule Delivery		
Module Type		Basic			☑ Theory	
Module Code		UOA140		☑ Lecture		
ECTS Credits		4			<ul><li>□ Lab</li><li>□ Tutorial</li></ul>	
SWL (hr/sem)				<ul><li>□ Practical</li><li>□Seminar</li></ul>		
Module Level		First Class	Semester o	er of Delivery		
Administering Dep	partment	NSD	College	CSIT		
Module Leader			e-mail			
Module Leader's Acad. Title			Module Lea	ıder's Qı	ualification	
Module Tutor			e-mail			
Peer Reviewer Name			e-mail			
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامعة الأنبار كامعة علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

Module Aims, Learning Outcomes and Indicative Contents					
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية					
Enhance Language Proficiency: The course aims to enhance students' language					
proficiency in English, including their reading, writing, speaking, and listening skills. It focuses on improving grammar, vocabulary, pronunciation, and overall communication abilities.					
Developing advanced reading comprehension skills and critical analysis of various texts.					
Enhancing writing skills across different genres and formats.					
Improving oral communication and presentation skills.					
Expanding language proficiency in English, including grammar, vocabulary, and pronunciation.					
Analyzing and interpreting literary works from diverse genres and periods.					
Conducting effective research and demonstrating information literacy.					
Cultivating critical thinking skills and forming well-supported opinions.					
Enhancing intercultural communication and understanding.					
Fostering creativity and imaginative expression through literature and writing.					
Cultivating a love for lifelong learning in the field of English.					
Study of various literary genres, such as poetry, drama, and prose.					
Analysis of literary works from different periods and cultural contexts.					
Development of critical reading and interpretation skills.					
Exploration of language and linguistics, including grammar, syntax, and phonetics.					
Introduction to literary theories and their application in analyzing texts.					
Practice in academic writing, including essay composition and research skills.					
Development of oral communication and presentation skills.  Examination of cultural and historical contexts that influence literature.					
Integration of technology and digital resources in language and literary studies.  Opportunities for creative writing and expression.					

Learning and Teaching Strategies				
استر اتيجيات التعلم والتعليم				
Strategies	Active Reading and Textual Analysis			



زارة التعليم العالي والبحث العلمي جامعة الانبار كالمعلوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شدكات الحاسوب

#### **DEPT. COMPUTER NETWORKS SYSTEMS**

Final Exam

assessment

**Total assessment** 

Collaborative Learning
Writing Workshops and Feedback
Technology Integration
Creative Expression

Student Workload (SWL) الحمل الدراسي للطالب				
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدر اسي المنتظم للطالب أسبوعيا	5.2	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	22	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.4	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100			

تقييم المادة الدراسية					
		Time/Nu	Weight (Marks)	Week Due	Relevant Learning
		mber	weight (wanks)	Week Due	Outcome
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5
Formative	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5
assessment	Projects / Lab.	1			
	Report	1	10% (10)	13	LO # 5,8 and IO
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6

60% (60)

16

AII

3 hr

**Module Evaluation** 

	Delivery Plan (Weekly Syllabus)				
	المنهاج الاسبوعي النظري				
	Material Covered				
Week 1	Student life				



### زارة التعليم العالي والبحث العلمي جامعة الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

#### **DEPT. COMPUTER NETWORKS SYSTEMS**

COMPUTE	K NETWORKS STSTEMS
	Reading- ways of reading: reading method
	Writing – punctuation, Linking ideas, rules
Week 2	Student life Part of speech- identifying nouns, verbs, adjective, adverbs, and prepositions.
Week 3	Daily routines:  • Predicting content  • Skimming
Week 4	Daily routines: Words that go together (Collocations, Rules)
Week 5	People and the environment
Week 6	Architecture Making notes: notes from study (intensive) reading, labelling diagrams
Week 7	Architecture  • Writing about a building – word and phrases  • (language to describe buildings)
Week 8	Education  • Universities – predicting content, linking ideas  • Writing a letter or email
Week 9	Education Spelling rules for plural countable nouns
Week 10	Technology  • Reading (invention) Writing (Describing things- writing adscription of advice
Week 11	Food, drink, and culture  • Topic sentence: using a topic sentence to help understanding Writers opinion: identifying the writer's opinion
Week 12	<ul> <li>Writing (punctuation ((commas)), linking ideas ((in addition, and using pronouns: avoiding repetition.</li> <li>Prefixes and their meanings</li> </ul>
Week 13	Cities of the world  Reading (looking at data: tables charts, and graphs.  Writing (Rules :comparatives and superlatives , linking ideas ; using relative pronouns which and where .
Week 14	Brain Power  Reading: using pronouns and synonyms to avoid repetition.  Writing ( common mistakes; typical grammar error , summaries: summarizing the main points of a text
Week 15	<ul> <li>Staying alive</li> <li>Reading: Dangerous diseases of our time</li> <li>Writing (number in texts ((words or figures? Writing numbers, learning: synonyms and antonyms).</li> </ul>
Week 16	Final Exam
	ı

Week 7



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

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

Learning and Teaching Resources					
	مصادر التعلم والتدريس				
	Text	Available in the Library?			
Required Texts	Headway Plus Beginner				
Recommended Texts					
Websites					

**DEPT. COMPUTER NETWORKS SYSTEMS** 



وزارة التعليم العالي والبحث العلمي جامعة الأنبار كالمعلى علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

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



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدر اسية						
Module Title	Infor	logy	Modu	ıle Delivery		
Module Type		Core			☑ Theory	
Module Code		NSCC110			Lecture     Lab	
ECTS Credits				☐ Tutorial		
SWL (hr/sem)			☐ Practical☐ Seminar			
Module Level		1	Semester o	r of Delivery		
Administering Dep	partment	NSD	College	CSIT		
Module Leader			e-mail			
Module Leader's	Acad. Title		Module Lea	ıder's Qu	ualification	
Module Tutor			e-mail			
Peer Reviewer Name			e-mail			
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

DEPT. (	COMPUTER	<b>NETWORKS</b>	SYSTEMS
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Module Aims, Learning Outcomes and Indicative Contents				
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	Develop technical skills: The primary aim of an IT course is to equip students with the necessary technical skills and knowledge to work effectively in the field of information technology.			
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Understand fundamental concepts: Demonstrate a solid understanding of fundamental concepts in information technology, including computer systems, networks, databases, programming languages, and software development methodologies.			
Indicative Contents المحتويات الإرشادية	Introduction to Information Technology:  Overview of information technology concepts, principles, and applications.  Historical development and evolution of IT.  Ethical, legal, and societal considerations in IT.			

Learning and Teaching Strategies استراتیجیات التعلم والتعلیم				
Strategies	Hands-on Practical Exercises Case Studies and Real-World Examples Collaborative Learning Continuous Assessment and Feedback			

Student Workload (SWL) الحمل الدراسي للطالب				
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5.2	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	97	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.4	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175			



وزارة التعليم العاليي والبحث العلم جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

#### **Module Evaluation**

تقييم المادة الدراسية

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

	Delivery Plan (Weekly Syllabus)				
	المنهاج الاسبوعي النظري				
	Material Covered				
Week 1	Introduction of Computers and Programming				
Week 2	Computer history and generation				
Week 3	Generation of Computers & Computer hierarchy				
Week 4	Basic Computer Components				
Week 5	Computer function (fetch cycle, interrupt cycle, I/O function				
Week 6	Semiconductor main memory (RAM, ROM, CACHE)				
Week 7	Secondary Storage				
Week 8	Memory and storage organization				
Week 9	Computer Software (Application software)				
Week 10	Middleware				
Week 11	Operating Systems				
Week 12	Telecommunications systems				
Week 13	Computer networks and applications				
Week 14	Protocols in networking				
Week 15	Layers of the OSI Model				
Week 16	Final Exam				



وزارة التعليم العالي والبحث العلمي جامعة الأنبار كلحية كلانبار كلحية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

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	Delivery Plan (Weekly Lab. Syllabus)					
	المنهاج الاسبوعي للمختبر					
	Material Covered					
Week 1	Networking fundamentals: setting up a local area network (LAN)					
Week 2	Network configuration and troubleshooting exercises					
Week 3	Introduction to web development: HTML and CSS basics					
Week 4	Database management system exercises: advanced SQL queries					
Week 5	Mobile app development: creating a simple mobile application					
Week 6	IT support and helpdesk management scenarios					
Week 7	Troubleshooting and problem-solving in IT environments					

	Learning and Teaching Resources	
	مصادر التعلم والتدريس	
	Text	Available in the Library?
Required Texts	Ralph M. Stair & George W. Reynolds, <i>Principles of Information Systems</i> , Ninth Edition, Cengage Learning, 2010.  Behrouz A. Forouzan, <i>Data Communications and Networking</i> , Fifth Edition, McGraw-Hill, USA, 2013.	
Recommended Texts		
Websites		



وزارة التعليم العالي والبحث العلمي جامسعية الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Grading Scheme مخطط الدرجات					
Group	Grade	التقدير	Marks (%)	Definition	
	A - Excellent	امتياز	90 - 100	Outstanding Performance	
Success Cream	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors	
Success Group (50 - 100)	C - Good	ختر	70 - 79	Sound work with notable errors	
(30 - 100)	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings	
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria	
Fail Group	p FX – Fail (قيد المعالجة) More work required but credit av		More work required but credit awarded		
(0 – 49)	<b>F</b> – 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.



وزارة التعليم العالي والبحث العلمي جامسعسة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

	Module Information معلومات المادة الدراسية					
Module Title				Modi	ule Delivery	
Module Type		Core			☑ Theory	
Module Code		NSCC109			□ Lecture ☑ Lab	
ECTS Credits		5			☐ Tutorial☐ Practical	
SWL (hr/sem)						
Module Level		First Class	Semester of Delivery			
Administering Department		NSD	College	CSIT		
Module Leader			e-mail			
Module Leader's	Module Leader's Acad. Title		Module Lea	der's Qı	ualification	
Module Tutor			e-mail			
Peer Reviewer Name			e-mail			
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Modu	Module Aims, Learning Outcomes and Indicative Contents						
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية						
Module Aims أهداف المادة الدراسية	The module aims to provide students with a solid understanding of digital logic principles and concepts. Students learn about Boolean algebra, logic gates, truth tables, and digital logic circuits.						
Module Learning Outcomes  مخرجات التعلم للمادة الدراسية	Demonstrate a solid understanding of digital logic principles, including Boolean algebra, logic gates, truth tables, and the concept of binary representation.						
Indicative Contents المحتويات الإرشادية	Introduction to Digital Logic Combinational Logic Design Arithmetic circuits Sequential Logic Design Circuit Testing and Verification						

Learning and Teaching Strategies				
استر اتيجيات التعلم والتعليم				
	Conceptual Understanding			
	Problem-Solving Approach			
	Hands-on Laboratory Experience			
Strategies	Design Projects			
	Simulation and Modeling			
	Problem-Based Learning			

Student Workload (SWL)				
الحمل الدر اسي للطالب				
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدر اسي المنتظم للطالب أسبوعيا	4.2	



### زارة التعليم العالي والبحث العلم جامسعية الأنبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

### **Module Evaluation**

تقييم المادة الدراسية

		Time/Nu	Maight (Marks)	Week Due	Relevant Learning	
		mber	Weight (Marks)	week Due	Outcome	
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5	
Formative	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5	
assessment	Projects / Lab.	1	10% (10)	Continuous		
	Report	1	10% (10)	13	LO # 5,8 and I0	
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6	
assessment	Final Exam	3 hr	50% (50)	16	All	
Total assessment		100% (100 Marks)				

	Delivery Plan (Weekly Syllabus)			
	المنهاج الاسبوعي النظري			
	Material Covered			
Week 1	Introduction: Digital System			
Week 2	Number Systems			
Week 3	Octal and Hexadecimal Numbers			
Week 4	Number base conversion			
Week 5	Theories of Boolean Algebra			
Week 6	Digital Logic gates			
Week 7	Boolean Expression and Truth table			
Week 8	Sum Of Product Simplification			
Week 9	Product Of Sum Simplification			
Week 10	Exclusive OR			
Week 11	NAND gates			
Week 12	NOR gates			
Week 13	Two- and Three-Variables Karnaugh Maps.			



## زارة التعليم العالي والبحث العلمي جامسعات الانبار كالمسعدة الانبار كالسية علوم الحاسوب وتكنولوجيا المعلومات قسيم أنظمة شبكات الحاسه ب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

Week 14	Four Variables Karnaugh Maps.
Week 15	Quine-McCluskey method
Week 16	Final Exam

	Delivery Plan (Weekly Lab. Syllabus)		
	المنهاج الاسبوعي للمختبر		
	Material Covered		
Week 1	Introduction to logic gates: AND, OR, NOT		
Week 2	Constructing truth tables for basic logic operations		
Week 3	Designing and building simple logic circuits using logic gates		
Week 4	Verifying the functionality of logic circuits through experimentation		
Week 5	Boolean algebra and simplification technique		
Week 6	Applying Boolean algebra to simplify logic circuits		
Week 7	Advanced logic gates: XOR, NAND, NOR		

Learning and Teaching Resources مصادر التعلم والتدريس				
	Text	Available in the Library?		
Required Texts	Digital fundamentals, Thomas L. Floyd, 11 <sup>th</sup> edition Digital Design, Morris Mano, 4 <sup>th</sup> edition	<u> </u>		
Recommended Texts	An Introduction to Logic Technology Fundamentals of logic design			
Websites				

Grading Scheme				
	مخطط الدرجات			
Group Grade التقدير Marks (%) Definition				



### رزارة التعليم العالي والبحث العلمي جامسعية الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسه ب

#### **DEPT. COMPUTER NETWORKS SYSTEMS**

	A - Excellent	امتياز	90 - 100	Outstanding Performance	
Suggest Charles	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors	
Success Group (50 - 100)	<b>C</b> - Good	ختر	70 - 79	Sound work with notable errors	
(30 - 100)	<b>D</b> - Satisfactory	actory متوسط		Fair but with major shortcomings	
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria	
Fail Group	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded	
(0 – 49)	<b>F</b> – 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.



وزارة التعليم العاليي والبحث العلمي جامسعية الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

	Module Information					
مادة الدراسية Module Title Mathematics			معلومات ال	Module Delivery		
Module Type		Support		☑ Theory		
Module Code		NSDC113		☐ Lecture ☐ Lab		
ECTS Credits		4		☐ Tutorial		
SWL (hr/sem)	100			☐ Practical☐ Seminar		
Module Level			Semester of Delivery			
Administering Dep	partment	NSD	College	CSIT		
Module Leader			e-mail			
Module Leader's	Acad. Title		Module Lea	der's Qualification		
Module Tutor			e-mail			
Peer Reviewer Name			e-mail			
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامعة الانبار حامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Module Aims, Learning Outcomes and Indicative Contents			
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية		
Module Aims	Core Mathematical Knowledge: The course aims to provide students with a solid		
the the thirty is	foundation of core mathematical concepts and theories. This includes topics such as		
أهداف المادة الدراسية	algebra, calculus, geometry, discrete mathematics, probability, and statistics. The aim		
	is to ensure that students have a comprehensive understanding of fundamental		
	mathematical principles.		
Module Learning			
Outcomes	Understand and Apply Mathematical Concepts: Demonstrate a thorough		
	understanding of mathematical concepts, theories, and techniques relevant to the		
	module. Apply these concepts to solve mathematical problems and analyze		
مخرجات التعلم للمادة الدراسية	mathematical structures and relationships.		
	Calculus		
	Linear Algebra		
Indicative Contents	Discrete Mathematics		
المحتويات الإرشادية	Probability and Statistics		
	Differential Equations		

Learning and Teaching Strategies		
استر اتيجيات التعلم والتعليم		
	Hands-on Practical Exercises	
	Case Studies and Real-World Examples	
Strategies	Collaborative Learning	
	Continuous Assessment and Feedback	

Student Workload (SWL)				
الحمل الدراسي للطالب				
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3.2	
Unstructured SWL (h/sem)	52	Unstructured SWL (h/w)	3.4	



### زارة التعليم العالي والبحث العلمي جامسعية الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسه ب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation								
	تقييم المادة الدراسية							
Time/Nu Weight (Marks) Week Due Relevant Learning								
		mber			Outcome			
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5			
Formative	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5			
assessment	Projects / Lab.							
	Report	1	10% (10)	13	LO # 5,8 and I0			
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6			
assessment	Final Exam	3 hr	60% (60)	16	All			
Total assessm	ent		100% (100 Marks)					

	Delivery Plan (Weekly Syllabus)		
	المنهاج الاسبوعي النظري		
	Material Covered		
Week 1	Functions: Function Definition, Domain and range of functions, Graphing of function		
Week 2	Limits: Definition of limits, Theorems of limits, Type of limits		
Week 3	The Definition and Interpretation of the Derivative		
Week 4	Properties of Derivative , Some laws of derivatives		
Week 5	Derivatives of the six trig functions		
Week 6	Exponential Functions, Logarithm Functions		
Week 7	Inverse Sine, Inverse cosine		
Week 8	Inverse tangent, Alternate Notation		
Week 9	The six hyperbolic trigonometric functions I		
Week 10	The six hyperbolic trigonometric functions II		
Week 11	The two forms of the chain rule		
Week 12	Using the chain rule		
Week 13	first derivative, second derivative, third derivative.		



## رزارة التعليم العالي والبحث العلمي جامعة الانبار كامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات المعلومات قسم أنظمة شركات الحاسمي

### **DEPT. COMPUTER NETWORKS SYSTEMS**

Week 14	logarithms
Week 15	the properties of logarithms
Week 16	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	George B. Thomas, Jr., Maurice D. Weir, Joel Hass, THOMAS' CALCULUS: EARLY TRANSCENDENTALS, Twelfth Edition, Pearson Education, Inc., 2010.			
Recommended Texts	Howard Anton, Irl Bivens, Stephen Davis, CALCULUS, 10th Edition, John Wiley & Sons, Inc., 2012.			
Websites				



وزارة التعليم العالي والبحث العلمي جامعة الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

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



وزارة التعليم العالي والبحث العلمي جامعة الانبار كامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية						
Module Title	Advanced Mathematics			Module Delivery		
Module Type		Support		☑ Theory		
Module Code		NSDC103		☐ Lecture ☐ Lab		
ECTS Credits		5		⊠ Tutorial		
SWL (hr/sem)	125			☐ Practical ☐ Seminar		
Module Level		1	Semester o	of Delivery		
Administering Dep	partment	NSD	College	CSIT		
Module Leader			e-mail			
Module Leader's Acad. Title			Module Lea	der's Qualification		
Module Tutor			e-mail			
Peer Reviewer Name			e-mail			
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامعة الأنبار حامعة الأنبار كلية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Module Aims, Learning Outcomes and Indicative Contents					
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية				
Module Aims	The course aims to build upon the foundational knowledge of mathematics acquired				
أهداف المادة الدراسية	in previous courses and provide a more comprehensive and rigorous understanding of key concepts. This includes topics such as calculus, linear algebra, number theory, and				
	discrete mathematics.				
Module Learning					
Outcomes	Students should be able to explain and apply advanced mathematical concepts and theories accurately, demonstrating a thorough understanding of their underlying principles and relationships.				
مخرجات التعلم للمادة الدراسية					
Indicative Contents المحتويات الإرشادية	Advanced topics in calculus and analysis, including limits, continuity, sequences, series, differentiation, integration, and convergence of functions. This may also include topics such as uniform convergence, Taylor series, and power series.				

Learning and Teaching Strategies				
استر اتيجيات التعلم والتعليم				
Strategies	Active Learning Scaffolding Real-World Applications Technology Integration			

Student Workload (SWL) الحمل الدر اسي للطالب					
Structured SWL (h/sem)         48         Structured SWL (h/w)           الحمل الدر اسي المنتظم للطالب أسبو عيا         الحمل الدر اسي المنتظم للطالب خلال الفصل					
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.1		
Total SWL (h/sem) 125					



زارة التعليم العاليي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

**DEPT. COMPUTER NETWORKS SYSTEMS** 

الحمل الدراسي الكلي للطالب خلال الفصل

#### **Module Evaluation**

تقييم المادة الدراسية

	, ,						
			Weight (Marks)	Week Due	Relevant Learning		
		mber	weight (warks)	week Due	Outcome		
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5		
Formative	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5		
assessment	Projects / Lab.						
	Report	1	10% (10)	13	LO # 5,8 and l0		
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6		
assessment	Final Exam	3 hr	60% (60)	16	All		
Total assessment							

Delivery Plan (Weekly Syllabus)				
المنهاج الاسبوعي النظري				
	Material Covered			
Week 1	Introduction to differential equation			
Week 2	Types of differential equation			
Week 3	Linear and Nonlinear DE			
Week 4	Types of First Order and First Degree			
Week 5	Variable Separable Equation			
Week 6	Leibnitz's (linear) Equation			
Week 7	Bernoulli's Differential Equation			
Week 8	Exact Differential Equation			
Week 9	Non Exact Differential Equation			
Week 10	Homogeneous and Non Homogeneous DE			
Week 11	Second order differential equation with constant coefficient			
Week 12	Laplace transform			
Week 13	Laplace Invers transform			
Week 14	Power series			
Week 15	Fourier series			
Week 16	Final Exam			



وزارة التعليم العالي والبحث العلمي جامعة الأنبار كلحية كلوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

	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				
Recommended Texts				
Websites				



وزارة التعليم العالي والبحث العلمي جامعة الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Grading Scheme مخطط الدر جات							
Group							
	A - Excellent	امتياز	90 - 100	Outstanding Performance			
S G	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors			
Success Group (50 - 100)	C - Good	ختر	70 - 79	Sound work with notable errors			
(50 - 100)	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings			
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria			
Fail Group	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded			
(0 – 49)	<b>F</b> – Fail	راسب	(0-44)	Considerable amount of work required			



وزارة التعليم العاليي والبحث العلمي جامسعية الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information							
معلومات المادة الدراسية							
Module Title		Arabic		Module Delivery			
Module Type		Core		☑ Theory			
Module Code		UOA137		☐ Lecture			
ECTS Credits		3		□ Lab □ Tutorial			
SWL (hr/sem)		75		☐ Practical ☐ Seminar			
Module Level		First Class	Semester of Delivery				
Administering Dep	partment	NSD	College	CSIT			
Module Leader			e-mail				
Module Leader's	Acad. Title		Module Lea	ler's Qualification			
Module Tutor	utor		e-mail				
Peer Reviewer Name			e-mail				
Scientific Committee Date	tee Approval		Version Nu	ber			

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



وزارة التعليم العالي والبحث العلمي جامعة الانبار حامعة كليبار كليبة علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Modu	le Aims, Learning Outcomes and Indicative Contents
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية
Module Aims أهداف المادة الدر اسية	The program aims to help students develop proficiency in reading, writing, speaking and understanding Arabic. This includes expanding vocabulary, improving gramma skills, and enhancing oral communication abilities.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Demonstrate proficiency in reading, writing, speaking, and understanding Arabic at ar appropriate level.  Display a nuanced understanding of Arab culture, history, traditions, and societa norms.  Apply knowledge of Arabic linguistics, including phonetics, morphology, syntax, and dialectal variations, to analyze and interpret Arabic texts.  Read and comprehend various types of Arabic texts, including literary works, news articles, and academic writings.  Produce coherent and well-structured written work in Arabic, demonstrating effective composition skills.
Indicative Contents المحتويات الإرشادية	Introduction to Arabic Language and Culture: Arabic alphabet and pronunciation Basic vocabulary and grammar Intercultural communication and cultural norms Arabic Reading and Writing: Building vocabulary and improving reading comprehension Sentence structure and basic composition Developing writing skills through practice and feedback Intermediate Arabic Language: Expanding vocabulary and enhancing grammar skills Oral communication and conversation practice Reading and analyzing texts of moderate complexity Arabic Literature: Introduction to classical and modern Arabic literature Reading and analyzing short stories, poems, and novels Exploring themes, styles, and literary techniques



زارة التعليم العالي والبحث العلمي جامعة الأنبار كامي كالمي كالمي كالمي كالمي كالمي كالميان المعلومات الماسوب قسم أنظمة شبكات الحاسوب

Learning and Teaching Strategies				
استر اتيجيات التعلم والتعليم				
	Immersion			
Strategies	Communicative Approach			
	Task-based Learning			
	Authentic Materials			
	Technology Integration			

Student Workload (SWL) الحمل الدر اسي للطالب				
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدر اسي المنتظم للطالب أسبوعيا	2.2	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75			

Module Evaluation						
تقييم المادة الدراسية						
Time/Nu			Weight (Marks)	Week Due	Relevant Learning	
		mber	weight (wanks)	Week Due	Outcome	
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5	
Formative	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5	
assessment Projects / Lab.						
	Report	1	10% (10)	13	LO # 5,8 and I0	
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6	
assessment	Final Exam	3 hr	60% (60)	16	All	
Total assessme	ent	•	100% (100 Marks)			



وزارة التعليم العالي والبحث العلمي جامعة الانبار كالمعلوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

	Delivery Plan (Weekly Syllabus)		
	المنهاج الاسبوعي النظري		
	Material Covered		
Week 1	Introduction to Arabic Language and Culture		
Week 2	Arabic Reading and Writing		
Week 3	Intermediate Arabic Language		
Week 4	Arabic Literature		
Week 5	Advanced Arabic Language		
Week 6	Arabic alphabet and pronunciation		
Week 7	Vocabulary building		
Week 8	Sentence structure and basic composition		
Week 9	Expanding vocabulary and enhancing grammar skills		
Week 10	Reading and analyzing short stories or poem		
Week 11	Exploring themes, literary devices, and cultural contexts		
Week 12	Reading and analyzing authentic texts of moderate complexity		
Week 13	Arabic Translation and Interpretation		
Week 14	Practice in translating written texts		
Week 15	Review and Assessment		
Week 16	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					



وزارة التعليم العالي والبحث العلمي جامعة الانبار جامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

	Learning and Teaching Resources مصادر التعلم والتدريس	
	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme					
مخطط الدرجات					
Group	Grade	التقدير	Marks (%)	Definition	
	A - Excellent	امتياز	90 - 100	Outstanding Performance	
S	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors	
Success Group (50 - 100)	C - Good	ختر	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	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded	
(0 – 49)	<b>F</b> – Fail	راسب	(0-44)	Considerable amount of work required	



وزارة التعليم العالي والبحث العلمي جامسعسة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information						
معلومات المادة الدراسية						
Module Title		C++ II		Modu	ule Delivery	
Module Type		Core			☑ Theory	
Module Code		NSCC108			□ Lecture ☑ Lab	
ECTS Credits		6			□ Tutorial	
SWL (hr/sem)	150			☐ Practical ☐ Seminar		
Module Level		1	Semester of Delivery			
Administering Dep	Administering Department		College	CSIT		
Module Leader			e-mail			
Module Leader's	Acad. Title		Module Lea	ıder's Qı	ualification	
Module Tutor	e Tutor		e-mail			
Peer Reviewer Name			e-mail			
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Modu	Module Aims, Learning Outcomes and Indicative Contents				
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية				
Module Aims أهداف المادة الدراسية	The course aims to provide students with a comprehensive understanding of the C++II programming language. Students learn the syntax, semantics, and features of C++II and gain proficiency in writing efficient and effective code.				
Module Learning Outcomes	Develop proficiency in the C++II programming language, including a strong understanding of its syntax, semantics, data types, control structures, functions, and object-oriented programming concepts.				
مخرجات التعلم للمادة الدراسية	Develop the ability to analyze problems, design algorithms, and implement solutions using C++II programming techniques. Apply critical thinking and logical reasoning to solve programming challenges.				
Indicative Contents المحتويات الإرشادية	Introduction to C++ Programming Object-Oriented Programming (OOP) in C++ C++ Standard Library Memory Management in C++ Data Structures and Algorithms in C++ C++ Application Development				

	Learning and Teaching Strategies استراتیجیات التعلم و التعلیم
Strategies	Conceptual Understanding: Hands-on Practice Code Review and Feedback Problem-Solving Exercises

Student Workload (SWL)			
	اسي للطالب	الحمل الدر	
Structured SWL (h/sem)63Structured SWL (h/w)4.2			4.2



### زارة التعليم العالي والبحث العلمي جامسعية الأنبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

### **Module Evaluation**

تقييم المادة الدراسية

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

	Delivery Plan (Weekly Syllabus)			
	المنهاج الاسبوعي النظري			
	Material Covered			
Week 1	Function			
Week 2	Passing Parameters. Passing by Value. Passing by Reference.			
Week 3	Recursive function			
Week 4	Pointers			
Week 5	Array of One Dimension: Declaration of Arrays.			
Week 6	Initializing Array Elements			
Week 7	Accessing Array Elements.			
Week 8	Read / Write / Process Array Elements.			
Week 9	Array of Two Dimension: Declaration of 2D-Arrays.			
Week 10	Read / Write / Process			
Week 11	Array Elements.			
Week 12	String manipulation			



### زارة التعليم العالي والبحث العلمي جامعة الانبار كامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات وسيم أنظمة شبكات الحاسوب

Week 13	Member Function of String stdlib Library.
Week 14	Structures
Week 15	Array of Structures.
Week 16	Final Exam

	Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر
	Material Covered
Week 1	Review of C++ basics: data types, variables, operators, and control structures
Week 2	Introduction to object-oriented programming (OOP) concepts: classes and objects
Week 3	Implementation of simple classes and objects in C++
Week 4	Inheritance and polymorphism: extending classes and overriding methods
Week 5	Introduction to dynamic memory allocation: new and delete operators
Week 6	Implementation of inheritance and polymorphism in C++
Week 7	File handling: reading from and writing to files

	Learning and Teaching Resources مصادر التعلم والتدريس	
	Text	Available in the Library?
Required Texts		
Recommended Texts	K. Venugopal and Raj Buyya, <i>Mastering C++</i> , McGraw Hill Education, 1997.	
Websites	https://www.learncpp.com/ https://www.w3schools.com/CPP/default.asp	



وزارة التعليم العالي والبحث العلمي جامعة الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

		Grading S		
	T	. الدرجات	1	
Group	Grade	التقدير	Marks (%)	Definition
	A - Excellent	امتياز	90 - 100	Outstanding Performance
Success Group (50 - 100)	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	ختر	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	<b>F</b> – Fail	راسب	(0-44)	Considerable amount of work required



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

		Module Inf مادة الدر اسية				
Module Title	Discrete Mathematics		ics	Modu	ıle Delivery	
Module Type		Support			☑ Theory	
Module Code		NSDC104			□ Lecture □Lab	
ECTS Credits	6				☐ Tutorial	
SWL (hr/sem)	150				<ul><li>□ Practical</li><li>☑ Seminar</li></ul>	
Module Level	1		Semester o	f Deliver	У	
Administering Dep	partment	NSD	College	CSIT		
Module Leader			e-mail			
Module Leader's Acad. Title			Module Lea	der's Qu	ualification	
Module Tutor			e-mail			
Peer Reviewer Name			e-mail			
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامعة الأنبار حامية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Module Aims, Learning Outcomes and Indicative Contents

Wiodale Allis, Learning Outcomes and maleative contents					
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية					
Module Aims أهداف المادة الدر اسية	The course aims to provide students with a solid understanding of the fundamental concepts and principles of discrete mathematics. This includes topics such as sets, logic, proof techniques, functions, relations, and combinatorics.				
Module Learning Outcomes	Demonstrate a solid understanding of fundamental concepts in discrete mathematics, including sets, logic, proof techniques, functions, relations, and combinatory.				
مخرجات التعلم للمادة الدراسية	Apply discrete mathematical techniques and methods to solve problems in various contexts, including computer science, algorithms, and cryptography.				
	Sets and Logic				
Indicative Contents	Proof Techniques				
المحتويات الإرشادية	Functions and Relations				
	Combinatorics				

Learning and Teaching Strategies					
	استر اتيجيات التعلم والتعليم				
	Active Learning				
Strategies	Concrete Examples and Visualization				
	Step-by-Step Approach				
	Scaffolding				
	Problem-Solving Strategies				

Student Workload (SWL) الحمل الدراسي للطالب					
Structured SWL (h/sem)         47         Structured SWL (h/w)         3.1					
Unstructured SWL (h/sem)	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6		



#### رزارة التعليم العالي والبحث العلمي جامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شدكات الحاسوب

الحمل الدراسي غير المنتظم للطالب خلال الفصل		
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150	

Module Evaluation							
تقييم المادة الدراسية							
	Time/Nu Weight (Marks) Week Due Relevant Learning						
		mber			Outcome		
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5		
Formative Assignments assessment Projects / Lab.		2	10% (10)	2,12	LO # 3, 4 and 5		
	Report	1	10% (10)	13	LO # 5,8 and I0		
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6		
assessment	Final Exam	3 hr	60% (60)	16	All		
Total assessment 100% (100 Marks)							

Delivery Plan (Weekly Syllabus)				
	المنهاج الاسبوعي النظري			
	Material Covered			
Week 1	Introduction to discrete mathematics			
Week 2	Set theory: Set Operations			
Week 3	Sequences and Summations			
Week 4	Cardinality of Sets and Matrices			
Week 5	Logic: Propositional Logic and its applications			
Week 6	Mathematical Induction and Recursion			
Week 7	Functions: Type of function (one-to-one & invertible function)			
Week 8	Geometrical characterization of functions			
Week 9	Relation: Computer representation of relations and Digraph			
Week 10	Manipulation of relations, Properties of relations Composition of relations			
Week 11	Graph theory: Graphs and Graph Models			
Week 12	Graph Terminology and Special Types of Graphs			
Week 13	Representing Graphs and Graph Isomorphism			
Week 13	Connectivity			



### رزارة التعليم العالي والبحث العلمي جامعة الانبار كالمي كلية علوم الحاسوب وتكنولوجيا المعلومات وسيد أنظمة شبكات الحاسوب

Week 14	Tree: Introduction to Trees, Applications of Trees
Week 15	Tree Traversal, Spanning Trees
Week 16	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			
	ICAC	Library?			
Required Texts					
Recommended Texts					
Websites					



وزارة التعليم العالي والبحث العلمي جامسعة الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

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



وزارة التعليم العاليي والبحث العلمي جامسعسة الأنبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information						
معلومات المادة الدراسية						
Module Title		Logic II		Modu	ule Delivery	
Module Type		Core			☑ Theory	
Module Code		NSCE111			□ Lecture ☑ Lab	
ECTS Credits		6			☐ Tutorial	
SWL (hr/sem)				<ul><li>□ Practical</li><li>□ Seminar</li></ul>		
Module Level		First Class	Semester of Delivery			
Administering Dep	partment	NSD	College	CSIT		
Module Leader			e-mail			
Module Leader's	Acad. Title		Module Lea	ıder's Qı	ualification	
Module Tutor			e-mail			
Peer Reviewer Name		e-mail				
Scientific Committee Approval Date			Version Nu	mber		

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



وزارة التعليم العالي والبحث العلمي جامعة الانبار حامعة كلية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

Module Aims, Learning Outcomes and Indicative Contents						
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية					
Module Aims أهداف المادة الدراسية	The module aims to develop students' skills in designing and implementing combinational logic circuits. Students learn how to analyze and design circuits using Boolean expressions, Karnaugh maps, and logic gates.					
Module Learning Outcomes  مخرجات التعلم للمادة الدراسية	Apply knowledge of combinational logic to design and implement digital circuits using Boolean expressions, Karnaugh maps, and logic gates. Develop the ability to simplify logic expressions and optimize circuit designs					
Indicative Contents المحتويات الإرشادية	Introduction to Digital Logic Combinational Logic Design Arithmetic circuits Sequential Logic Design Circuit Testing and Verification					

Learning and Teaching Strategies					
	استر اتيجيات التعلم والتعليم				
	Conceptual Understanding				
Chushanian	Problem-Solving Approach				
	Hands-on Laboratory Experience				
	Design Projects				
Strategies	Simulation and Modeling				
	Problem-Based Learning				

Student Workload (SWL)	
الحمل الدر اسى للطالب	



#### زارة التعليم العالي والبحث العلم جامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شدكات الحاسوب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

**Total assessment** 

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدر اسي المنتظم للطالب أسبو عيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية								
	Time/Nu Weight (Marks) Week Due Relevant Learning							
		mber			Outcome			
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5			
Formative	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5			
assessment Projects / Lab.		1	10% (10)	Continuous				
	Report	1	10% (10)	13	LO # 5,8 and I0			
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6			
assessment	Final Exam	3 hr	50% (50)	16	All			

100% (100 Marks)

Delivery Plan (Weekly Syllabus)				
المنهاج الاسبوعي النظري				
	Material Covered			
Week 1	Combinational Logic: Adder, Subtractor			
Week 2	Comparators, Decoders and Encoders			
Week 3	Multiplexers (Data Selectors). and DE multiplexers			
Week 4	Sequential Logic			
Week 5	Latches			
Week 6	Flip-Flops: Operating Characteristics			
Week 7	Flip-Flop: S-R and J-K Flip-Flops			
Week 8	Flip-Flop: Trigger and Delay Flip-Flops			
Week 9	Applied Logic			
Week 10	Types of Shift Register Data IOS			



### وزارة التعليم العالي والبحث العلمي جامعة الانبار كامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات وسيد أنظمة شبكات الحاسوب

Week 11	Bidirectional Shift Registers
Week 12	Shift Register Counters
Week 13	Shift Register Applications
Week 14	Ripple Counters
Week 15	Memory and Programmable logic
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)				
المنهاج الاسبوعي للمختبر				
	Material Covered			
Week 1	Review of propositional logic: syntax, semantics, and truth tables			
Week 2	Implementation of propositional logic in a programming language			
Week 3	Practice with propositional logic proofs and truth table evaluations			
Week 4	Introduction to predicate logic: quantifiers, predicates, and interpretations			
Week 5	Practice with predicate logic proofs and interpretation			
Week 6	Advanced topics in logic: formal proofs, deduction rules, and logical equivalences			
Week 7	Proof strategies and techniques for solving logic problems			

Learning and Teaching Resources				
مصادر التعلم والتدريس				
Text  Text  Library?				
	Digital fundamentals, Thomas L. Floyd, 11 <sup>th</sup>			
Required Texts	edition Digital Design, Morris Mano, 4th edition			
	An Introduction to Logic Technology and Fundamentals of			
	logic design			



زارة التعليم العالي والبحث العلمي جامسعة الانبار كامسعية الانبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسيم أنظمة شبكات الحاسوب

#### **DEPT. COMPUTER NETWORKS SYSTEMS**

Recommended Texts	
Websites	

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



وزارة التعليم العالي والبحث العلمي جامسعية الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information معلومات المادة الدر اسية							
Module Title	Rights and democracy			Modu	ıle Delivery		
Module Type		Basic			☑ Theory		
Module Code		UOA135			☐ Lecture ☐ Lab		
ECTS Credits				☐ Lab ☑ Tutorial			
SWL (hr/sem)	100				<ul><li>□ Practical</li><li>□ Seminar</li></ul>		
Module Level	First Class		Semester o	nester of Delivery			
Administering De	partment	NSD	College	CSIT			
Module Leader			e-mail				
Module Leader's	Acad. Title		Module Lea	ıder's Qı	ualification		
Module Tutor	odule Tutor		e-mail				
Peer Reviewer Name			e-mail				
Scientific Committee Approval Date			Version Nu	mber			

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			
	<ol> <li>Understand the concepts of rights and democracy: The aim of this module is to provide students with a solid understanding of the principles, theories, and values underpinning rights and democracy, including their historical development and contemporary significance.</li> </ol>			
	<ol> <li>Examine the relationship between rights and democracy: This module aims to explore the interplay between rights and democracy, analyzing how democratic systems uphold and protect individual and collective rights, and how rights contribute to the functioning of democratic societies.</li> </ol>			
Module Aims أهداف المادة الدراسية	<ol> <li>Critically assess the challenges to rights and democracy: The aim is to develop students' critical thinking skills in evaluating the challenges and threats faced by rights and democracy, such as authoritarianism, populism, inequality, discrimination, and violations of human rights.</li> </ol>			
	4. Analyze the role of institutions and mechanisms in safeguarding rights and democracy: This module aims to examine the role of various institutions, such as legislative bodies, courts, civil society organizations, and international bodies, in protecting and promoting rights and democracy.			
	<ol> <li>Explore the intersectionality of rights and democracy: The aim is to foster an understanding of the intersectionality between different rights and how they intersect with democratic processes, including social, economic, cultural, and political rights.</li> </ol>			
	Demonstrate a comprehensive understanding of the concepts, theories, and principles of rights and democracy.			
	2. Analyze and evaluate the relationship between rights and democracy, and understand how they mutually reinforce each other.			
Module Learning Outcomes	<ol> <li>Critically assess the challenges and threats to rights and democracy in contemporary society.</li> </ol>			
مخرجات التعلم للمادة الدراسية	<ol> <li>Examine the role of institutions and mechanisms in safeguarding and promoting rights and democracy.</li> </ol>			
	<ol><li>Recognize the intersectionality of rights and understand how different rights intersect with democratic processes.</li></ol>			
	6. Analyze the role of media and information in the context of rights and democracy, including the opportunities and challenges presented by digital			



### زارة التعليم العالسي والبحث العلمي جامسعسة الأنبار كلسية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

### **DEPT. COMPUTER NETWORKS SYSTEMS**

	technologies.
Indicative Contents المحتويات الإرشادية	<ol> <li>Introduction to Rights and Democracy:         <ul> <li>Overview of the concepts of rights and democracy</li> <li>Historical development and evolution of rights and democracy</li> </ul> </li> <li>Theoretical Foundations:         <ul> <li>Theories of democracy and its various forms</li> <li>Theories of human rights and their philosophical underpinnings</li> </ul> </li> <li>International Human Rights Framework:         <ul> <li>Universal Declaration of Human Rights and international human rights treaties</li> <li>Role of international organizations and institutions in promoting and protecting human rights</li> </ul> </li> <li>Democratic Institutions and Processes:         <ul> <li>Separation of powers and the rule of law</li> <li>Electoral systems and democratic governance</li> <li>Civil society and its role in democratic processes</li> </ul> </li> <li>Rights and Democracy in Practice:         <ul> <li>Rights-based approaches to development</li> <li>Freedom of expression, assembly, and association</li> <li>Equality and non-discrimination</li> </ul> </li> </ol>

Learning and Teaching Strategies استراتیجیات التعلم و التعلیم		
Strategies	Lectures Case Studies	
	Group Discussions	

### Student Workload (SWL) الحمل الدراسي للطالب



Structured SWL (h/sem) الحمل الدر اسي المنتظم للطالب خلال الفصل	84	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Modu	le Eva	luation
اسدة	مادة الد	تقديم ال

سيه	الدرا	المادة	و و د

3					
		Time/Nu	Weight (Marks)	Week Due	Relevant Learning
		mber			Outcome
	Quizzes	2	10% (10)	5,10	LO #1,2, 3 and 5
Formative	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5
assessment	Projects / Lab.				
	Report	1	10% (10)	13	LO # 5,8 and IO
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-6
assessment	Final Exam	3 hr	60% (50)	16	All
Total assessment		100% (100 Marks)			

Delivery Plan (Weekly Syllabus)			
	المنهاج الاسبوعي النظري		
	Material Covered		
Week 1	Definition of rights		
Week 2	types of human rights		
Week 3	Fundamental and non-fundamental rights		
Week 4	Civil rights		
Week 5	political rights		
Week 6	Economic, social and cultural rights		
Week 7	The concept of democracy		
Week 8	Advantages of democracy		
Week 9	Types of democracy		
Week 10	direct democracy		
Week 11	Representative democracy		



### وزارة التعليم العالي والبحث العلمي جامعة الانبار كامعة الانبار كلية علوم الحاسوب وتكنولوجيا المعلومات قسيم أنظمة شبكات الحاسوب

Week 12	semi-direct democracy
Week 13	indirect democracy
Week 14	Freedom, human dignity
Week 15	Equality and justice, political participation
Week 16	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		•		
Recommended Texts				
Websites				



وزارة التعليم العالي والبحث العلمي جامعة الانبار كليية علوم الحاسوب وتكنولوجيا المعلومات قسم أنظمة شبكات الحاسوب

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