MODULE DESCRIPTOR FORM

Module Information

Module Title	DISCRETE STRUCTURES	**Module Delivery**	
Module Type	CORE	**Theory ✓** **Seminar ✓**	
Module Code	IT1202		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	**Semester of Delivery**	2
Administering Department	Information technology	**College**	College of Sciences
Module Leader	ELAF ADIL	**e-mail**	Elaf.Adel.Abbas@uowa.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD
Module Tutor	ELAF ADIL	**e-mail**	Elaf.Adel.Abbas@uowa.edu.iq
Peer Reviewer name	Asst. Prof. Dr Haider Mohammad	**e-mail**	hayder.alghanami@uowa.edu.iq
Review Committee Approval	2024-1-20	**Version Number**	1

Relation With Other Modules

Prerequisite module	None	**Semester**	None
Co-requisites module	None	**Semester**	None

Department Head Approval

Dean of the College Approval

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. Provide students with basic information about digital logic and logic circuits. 2. Increasing students' horizons in the fields of computer science and digital development. 3. Developing the students' English language by teaching the subject in English. 4. Providing students with applied and experimental skills through practical subjects and laboratories. 5. Familiarize students with the latest developments in the fields of different sciences and the technology emanating from them. 6. Developing the student's ability to research and providing him with scientific research contexts. 7. Develop students' ability to analyze and link information and conclusion. 8. Enhancing the scientific spirit in the interpretation of phenomena, discussion and dialogue. 9. Consolidation of conviction in the integration of sciences and their universality towards the truth. 10. Working on refining the student's personality and discovering his inclinations and talents through scientific and cultural activities. 11. Enhancing the spirit of teamwork through the participation of students in laboratory work or the completion of joint scientific research. Establish values and ideals Higher among them is respect for instructions, discipline, respect for the institution to which the student belongs, and preservation of its property.
Module Learning Outcomes	1. Knowing the numerical number systems used in logical circuits and performing arithmetic operations on them. 2. Knowledge of logical circuits and their design methods. 3. Simplify logic circuits by simplifying their equations. 4. Full knowledge of digital meters, dividers and other electronic circuits. 5. Full knowledge of the use of signs and their representation in binary numbers. 6. Full knowledge of how to convert between number systems used in numerical operations. 7. How to integrate digital portals together and methods of calculating their outputs. 8. Design counters and dividers and link them together
Indicative Contents	1. Foundational knowledge in digital logic and logic circuits for computer science and digital development: ○ Introduction to digital logic and its significance in computer science and digital development. ○ Understanding the principles and components of logic circuits ○ Exploring the role of logic circuits in data processing and information storage. 2. Broadening horizons in computer science and digital development: ○ Exploration of various fields and applications within computer science and digital development.

	○ Introduction to key concepts and technologies shaping the industry. ○ Understanding the impact of computer science on society and everyday life. 3. Practical application and experimental skills through hands-on work in laboratories: ○ Engaging in practical subjects and laboratory sessions to gain handson experience. ○ Applying theoretical knowledge to design and build logic circuits. ○ Developing skills in breadboarding, prototyping, troubleshooting, and circuit analysis. 4. Keeping students updated with the latest developments in science and technology: ○ Discussing recent advancements in various scientific fields related to digital logic and logic circuits. ○ Exploring emerging technologies and their impact on computer science and digital development. ○ Encouraging students to stay informed through literature review and research. 5. Enhancing research skills and providing scientific research contexts: ○ Developing research methodologies and skills necessary for scientific investigation. ○ Providing opportunities for students to conduct research projects related to digital logic. ○ Guiding students in collecting and analyzing data, drawing conclusions, and presenting research findings. 6. Developing analytical thinking, scientific spirit, teamwork, and instilling values of respect, discipline, and responsibility: ○ Cultivating analytical thinking skills to analyze and link information in the context of digital logic. ○ Promoting a scientific spirit by encouraging interpretation of phenomena and engaging in discussions and dialogues. ○ Fostering teamwork through collaboration in laboratory work and joint scientific research projects. ○ Instilling values of respect for instructions, discipline, and preservation of institutional property.

Learning and Teaching Strategies	
Strategies	▪ Giving lectures ▪ Scientific discussions and dialogues and asking questions

Student Workload (SWL)			
Structured SWL (h/sem)	45	**Structured SWL (h/w)**	3
Unstructured SWL (h/sem)	102	**Unstructured SWL (h/w)**	7
Total SWL (h/sem)	147 + 3 final = 150		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	5%(10)	All Weeks	1,2,3,4
	Onsite Assignments	3	5%(15)	3,5,8,11	4,6,7
	Report	1	5%(5)	13	all
	Homework	5	2%(10)	4,7,9,10	1,2,3,4,5,6
Summative assessment	**Midterm Exam**	2h	10	7	
	Final Exam	3h	50	15	
Total assessment			100		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction
Week 2	Mathematical logic
Week 3	Mathematical logic
Week 4	Functions
Week 5	Composition of Function
Week 6	Propositions
Week 7	Mathematical Proof
Week 8	Set Theory 1
Week 9	Set Theory 2
Week 10	Set Theory 3
Week 11	Representing Sets
Week 12	Combining Propositions 1
Week 13	Combining Propositions 2
Week 14	Combining Propositions 3
Week 15	Combining Propositions 4

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Norman L. Biggs (2002-12-19). Discrete Mathematics. Oxford University Press. ISBN 978-0-19-850717-8.	no
Recommended Texts	Susanna S. Epp (2010-08-04). Discrete Mathematics With Applications. Thomson Brooks/Cole. ISBN 978-0-495- 39132-6.	no
Websites		

APPENDIX:

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

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

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي