Course Description Form

1. Course Name Algorithm and its complexity 2. Course Code CSA13109 3. Semester / Year First Semester 4. Description Preparation Date 18/2/2025 5. Available Attendance Forms: Theoretical and practical presence 6. Number of Credit Hours (Total) / Number of Units (Total) 30 Hours theoretical and 30 Hours practical/ 3 units 7. Course administrator's name (mention all, if more than one name) Name: EMAN SHAKIR MAHMOOD Email: 110036@uotechnology.edu.iq 8. Course Objectives • Enable the student to know the Basic methods of how to analyze complexity of algorithms • Study the basic types of algorithms to solve a group of known problems with their Practical application • Enable the student to know How to reduce complexity using several programming methods and how to distinguish between programming techniques and test the best ones 9. Teaching and Learning Strategies Strategy 1. Methodological books, resources (Internet and Ilbrary), lectures reinforced villustrative examples. 2. Theoretical lectures, laboratories, practical tasks, using modern equipmen present practical leas to students (data show, electronic board).									
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3- Course Structure									
Week Hours Required Unit or subject name Learning Evaluation	Week	Hours	Required	Unit or subject name	Learning	Evaluation			
Learning method method			Learning		method	method			

Outcomes							
1	2	1,2,3,6,7	Introduction	Classroom and Laboratory	Homework		
2	2	1,2,3,6,7	-Some Problems (Knapsack,4-color mapping	Classroom and Laboratory	Discussion		
3	2	1,2,3,6,7	Traveling Salesman, Shortest Path	Classroom and Laboratory	Quiz		
4	2	1,2,3,6,7	Subset Sum, Scheduling, Closest Pair of Point).	Classroom and Laboratory	Homework		
5	2	1,2,3,6,7	Ω, θ and O notations	Classroom and Laboratory	Discussion		
6	2	1,2,3,6,7	-Greedy Algorithms.	Classroom and Laboratory	Quiz		
7	2	1,2,3,6,7	-Divide – and – Conquer Algorithms.	Classroom and Laboratory	Homework		
8	2	1,2,3,6,7	-Dynamic Programming.	Classroom and Laboratory	Homework		
9	2	1,2,3,6,7	Dynamic programmingNetwork flow	Classroom and Laboratory	Discussion		
10	2	1,2,3,6,7	-Network Flow.	Classroom and Laboratory	Homework		
11	2	1,2,3,6,7	Approximation Algorithms	Classroom and Laboratory	Discussion		
12	2	1,2,3,6,7	Approximation Algorithms	Classroom and Laboratory	Homework		
1321,2,3,6,7-String Matching AlgorithmClassroom and LaboratoryHomework							
1421,2,3,6,7-String Matching AlgorithmClassroom and LaboratoryQuiz							
4- Course Evaluation							
exams daily duties Attendees							
5- Learning and Teaching Resources							
Required textbooks (curricular books,							
any)							

Main references (sources)	 1-Algorithm Design" by Jon Kleinberg & Eva Tardos , Addison Wesley (Pearson Inc.),2008 2-Algorithms and complexities, Herbert S. Wilf
Recommended books and references (scientific journals, reports)	
Electronic References, Websites	