

Course Description Form

1. Course Name:					
Theory of Ordinary Differential Equations					
2. Course Code:					
MATH 318					
3. Semester / Year:					
Second Semester / Third Class					
4. Description Preparation Date:					
1/3/2024					
5. Available Attendance Forms:					
6. Number of Credit Hours (Total) / Number of Units (Total):					
60 Hours/ 4Unit					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ahmed Ayyoub Yousif					
Email: ahmed.ayyoub@nahrainuniv.edu.iq					
8. Course Objectives					
Course Objectives		<ul style="list-style-type: none"> • The course aims to give the basic exercises and theories of first-order differential systems and find the solution to them through the basic solution matrix. • After that, the course deals with the study of the phase level and the solution behavior of these systems without addressing their solution • At the end of the course, the study of the stability of solutions was addressed through the theory of parallel behavior and the theories of Lyabanov. 			
9. Teaching and Learning Strategies					
Strategy		1- Daily Post. 2- Daily Exams. 3- The Monthly Exam. 4- Home Works.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 st & 2 nd	8	Linear systems		Give Lectures	Daily Exams and H.W.
3 rd & 4 th	8	Fundamental matrix solution		Give Lectures	Daily Exams and H.W.
5 th & 6 th	8	Jordan canonical form		Give Lectures	Daily Exams and H.W.

7 th & 8 th	8	Phase plane		Give Lectures	Daily Exams and H.W.
9 th & 10 th	8	Existence and Uniqueness theorem		Give Lectures	Daily Exams and H.W.
11 th & 12 th	8	Periodic Systems		Give Lectures	Daily Exams and H.W.
13 th & 14 th	8	Stability theory		Give Lectures	Daily Exams and H.W.
15 th	4	Liapunov stability		Give Lectures	Daily Exams and H.W.

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The Qualitative Theory of Ordinary Differential Equations: An Introduction By Fred Brauer, John A. Nohel
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	