بسم الله الرحمن الرحيم

Republic of Iraq

The Ministry Of Higher Education

& Scientific Research

وزارة التعليم العالي
والبحث العلمي
Ministry of Higher Education & Scientific Research

University: Diyala

College: Engineering

Department: Chemical Engineering

Stage: 3rd

Lecturer name: Mohammed Faiq Mohammed

Qualification: M.Sc. Chemical Eng.

Place of work: Chemical Eng, Dept.

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Course Instructor	Mohammed Faiq Mohammed
E-mail	mscchemengmfm1977@gmail.com
Title	Engineering Analysis
Course Coordinator	Annually
Course Objective	This subject is used to teach students the method of mathematics in Chemical Engineering from industrial side view.
Course Description	1st order differential equations, 2nd order differential equations, Frobineous method, Error, Gamma, Beta, and Bell functions, Partial differential equations, Laplace transform, Mathematical modeling, Finite differences (Application on chemical engineering systems) with multiple steps. Numerical methods, Elimination methods, Cramers / Matrix-inverse methods, Applications), Solving set of non-linear equations (Newton / fixed point iteration method), Solving differential equations D. E. ordinary (Euler, Modified Euler, Runge-Kutta), Numerical Integration (Trapezoidal, Simpsons rule), Interpolation (linear, lagrange, Newton-Gregory, Stirling).
Textbook	MATHEMATICAL METHODS IN CHEMICAL ENGINEEING Second Edition BY V. G. JENSON & G. V. JEFFREYS , 1963

Course Assessments	Term Tests	Laboratory	Quizzes	Project	Final Exam
	As(30%)	As(10%)	As(10٪)	-	As(60%)

General Notes	3 hrs theoretical and 1 hr laboratory using MATLAB Program

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Course Weekly Outline

Week	Date	Topes Covered	Lab. Experiment Assignments	Notes
١	٢١-٢٨/٩/٢٠١٤	Introduction and ١st order differential equations	MATLAB Application	
٢	٢-١٦/١٠/٢٠١٤	١st order and ٢nd order D. E.	MATLAB Application	
٣	١٩-٣٠/١٠/٢٠١٤	Introduction to series and Frobineous method		
٤	٢/١١/٢٠١٤	Error function		
٥	٦/١١/٢٠١٤	Gamma & Beta functions		
٦	٩/١١/٢٠١٤	Bell functions		
٧	١٣/١١/٢٠١٤	Partial differential equations		
٨	١٦-٣٠/١١/٢٠١٤	Laplace Transform	MATLAB Application	
٩	٣-١٠/١٢/٢٠١٤	Mathematical Modeling	MATLAB Application	
١٠	١٤/١٢/٢٠١٤ - ٧/١/٢٠١٤	Finite differences (application on chemical engineering systems) with multiple steps.	MATLAB Application	
١١				
١٢				
١٣				
١٤				
١٥				
١٦				
Half – year break				
١٧	١٥/٢/٢٠١٥	Introduction to Numerical methods		
١٨	١٩-٢٢/٢/٢٠١٥	Elimination methods	MATLAB Application	
١٩	٢٦/٢/٢٠١٥ - ٧/٣/٢٠١٥	Cramers / Matrix-inverse methods and applications	MATLAB Application	
٢٠	١١-٢٨/٣/٢٠١٥	Solving set of non-linear	MATLAB

		equations (Newton / fixed point iteration method)	Application	
٢١	٢-١٢/٤/٢٠١٥	Solving differential equations D. E. ordinary (Euler, Modified Euler, Runge-Kutta)	MATLAB Application	
٢٢	١٦-٣٠/٤/٢٠١٥	Numerical Integration (Trapezoidal, Simpsons rule)	MATLAB Application	
٢٣	٣-٧/٥/٢٠١٥	Interpolation (linear)	MATLAB Application	
٢٤	١٠-١٤/٥/٢٠١٥	Interpolation (lagrange)	MATLAB Application	
٢٥	١٧-٢٤/٥/٢٠١٥	Interpolation (Newton-Gregory)	MATLAB Application	
٢٦	٢٨/٥/٢٠١٥ - ٤/٦/٢٠١٥	Interpolation (Stirling)	MATLAB Application	
٢٧				
٢٨				
٢٩				
٣٠				
٣١				

INSTRUCTOR Signature: M. F. M.   **Dean Signature:**