

Date:	Examination No.: -----	Version:30/06/2023	Start: 10/9/2023
Module Name - Code	Applied Engineering Analysis - 0111		
Module Language:	English		
Responsible:	Mahde Akram Molan		
Lecture (s):	Mahde Akram Molan		
College:	College of Engineering – Salahaddin University		
Duration:	15 week – 1 semester		
Course outcomes:	At the end of the semester, students would be able to understand the analyzing the mechanical systems mathematically. They would also be able to understand the behavior of different materials under different conditions		
Course Content:	Homogeneous second order Differential Equations; Non- Homogeneous second order Differential Equations; Higher Differential Equations; Laplace Transforms; Interpolation: Linear, Quadratic, and Cubic; Curve Fitting Techniques; Fourier Series; Partial Differential Equations; Dirichlet Problem; Neuron and Boundary Value Problems; Irregular Boundary		
Literature:	<ul style="list-style-type: none"> - Basic Engineering Mathematics, John Bird, 4th Edition - Higher Engineering Mathematics, John Bird, 5th Edition - Advanced Engineering Mathematics, Erwin Kreyszig, 9th Edition 		
Type of Teaching:	3 hrs lectures 1 hr Tutorial		
Pre-requisites:	No Pre-requisites, but background is needed in Math III and Math IV		
Frequency:	Yearly in fall semester		
Requirements for credit points:	<p>For the award of credit points it is necessary to pass the module exams, The module exam contains:</p> <p>Effort: Written exam – Med term : 20% quizzes + other activities : 20%</p> <p>Final: Written exam- Final exam: 40%</p> <p>Student's attendance is required in all classes.</p> <p>Students with more than 10% absent records and/or effort less than 20% are not allowed to enter the final exam</p>		
Credit point:	5		
Grade Distribution:	<p>The Grade is generated from the examination result(s) with the following weights (w):</p> <p>Theoretical Part "w": 100%</p> <p>Effort: 40 % [20% midterm exam + 20% quizzes (2-4 quizzes), homework, reports, and assignments]</p> <p>Final: 60 %</p> <p>Note: Students allow to attend Final Exam if he/she collect 20 % degree efforts</p>		
Work load:	<p>The workload is 135 hrs. (5×27). Face to face learning: 4×15=60 hrs.</p> <p>Self-learning: 135-60 = 75 hrs. [Should be fulfilled by students through homework, reports, software learning, ..etc]</p>		

Week no.	Date	Study Subject Details
1	Sep. 2023	Review of Math and Calculus
2		Homogenous Linear Equations of Second Order D.E.
3		In-homogenous Linear Equations of Second Order D.E.
4		In-homogenous Linear Equations of Second Order D.E.
5		Laplace Transforms
6		Inverse Laplace Transforms & Partial Fraction
7		Laplace Transforms of Derivatives
8		Solving Differential equations by Laplace
9		Solving simultaneous equations by Laplace
10		Tutorial on Second Order D.E.
11		Interpolation Newton's Method
12		Lagrange interpolation
13		Multivariable Interpolation
14		Curve fitting
15		Fourier Series