

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Ordinary Diff.Equations(1)
Course number	MATH2308
Faculty	
Department	
Course type	College Needs
Course level	2
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

- 1 - Solve some special types of ODEs, such as first order ODEs, Linear ODEs, Cauchy Euler ODEs
- 2 - Use series solutions to solve ODEs
- 3 - Use Laplace transforms to solve ODEs
- 4 - Model some real life problems using ODEs

Intended Learning Outcomes

Knowledge and Understanding	<ul style="list-style-type: none"> * Select suitable procedure to solve a given ODE * Find series solution of 2nd order linear differential equations * Find Laplace and Inverse Laplace transforms of given functions * Derive mathematical model containing ODE of a real life problems
Intellectual Skills	<ul style="list-style-type: none"> * Tell if an ODEs has a solution or not * Find an ODEs whose solution is a given function * Make critical comments on obtained results
General Skill	<ul style="list-style-type: none"> * Involving in discussion * Team work and conducting specific tasks independently

Course Contents

- 1 - Ordinary differential equations of first order: Separable equations, Homogeneous equations, Linear equations, Bernoulli's equations
- 2 - Applications: Orthogonal trajectories, Population dynamics
- 3 - Higher order differential equations: Reduction of order, Linear dependence and Wronskian
- 4 - Linear equations with constant coefficients: The method of undetermined coefficients, The method of variation of parameters
- 5 - Cauchy/Euler equation- Laplace transformation

Teaching and Learning Methods

- 1 - L.C.D-Compter

Teaching and Learning Methods for the Disabled Students

1 - Lectures, Discussion, Solving problems

Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
Homework	Week 8	5
Quze	Any time	5
First mid-term	Week 6	20
Second mid-term	Week 13	20
Final Exam	Week 16	50

Books and References

Essential books	Elementary differential equations and boundary value problem - eighth edition- W.E.Boyce -Richard C. Dpirma Elementary differential equations - E.D.Rainvslle -P.E.Bedient
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