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	* Select suitable procedure to solve a given ODE
	* Find series solution of 2nd order linear differential equations
	* Find Laplace and Inverse Laplace tramsforms of given functions
	* Derive mathematical model containing ODE of a real life problems
Intellectual Skills	* 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	* 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

Assessment Method	TIME	MARKS
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. Diprma
	Elementary differential equations - E.D.Rainvslle -P.E.Bedient