Department of Mathematics
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Course	**Course Name**	**: Ordinary Differential Equations**
	Course Code	**: KM184401**
	Credit	**: 3**
	Semester	**: 4**

Description of Course
In this course students will learn about different kinds of differential equations with 1 (one) independent variable as well as methods to solve differential equations and systems of differential equations, existence and uniqueness solution, properties and behavior of solution, the stability of the system in the form of linear differential equations,. In discussion in the class students will learn and be equipped to understand and to be able to explain the material taught in accordance with the teaching materials. Besides, students are given tasks that lead to independent study and team work.

Learning Outcome	
PLO 2	[C3] Students are able to solve simple and practical problems by applying basic mathematical statements, methods and computations
PLO 3	[C4] Students are able to analyze simple and practical problems in at least one field of analysis, algebra, modeling, system optimizations and computing sciences

Course Learning Outcome

1. Students are able to identify problems with the form of ordinary differential equations and ordinary differential equations systems
2. Students are able to apply methods to solve ordinary differential equations and ordinary differential equations systems

3. Students are able to analyze the properties and behavior of the solution of the system of ordinary differential equations
Main Subject
1. Ordinary differential equations afirst order :: separation of variables, linear differential equations, exact and integration factors. 2. Second and higher differential equations: homogeneous equations, non homogeneous equations, fundamental solutions, undertemined coefficient methods, methods of parameter variation. 3. First order differential equation system: presentation of differential equations in system form, existence and uniqueness solution, properties and behavior of solution, system stability linear differential equations system, eigenvalues, Ruth Hurwitz method, Lyapunov method.
Prerequisites
Elementary Linear Algebra
Reference
1. Boyce Di Prima , "Ordinary Differential Equation and Boundary Value Problem, 9th edition, 2005.
Supporting Reference