

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Ordinary Diff.Equations(2)
Course number	MATH3311
Faculty	
Department	
Course type	Major Needs
Course level	3
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

- 1 - Encourages a view of mathematics as a way of thinking and as a language for communicating ideas, and to develop effective ways of visualizing and thinking more generally
- 2 - Present solution techniques for differential equations by using infinite series.
- 3 - Learn the tools and ethics related to the systems of linear first order Ordinary Differential Equations

Intended Learning Outcomes

Knowledge and Understanding	<ul style="list-style-type: none"> * Describe the importance of Ordinary differential equations and the relation between ordinary differential equations and other sciences in solving Society problems * Mention different terminology in pure and applied mathematics * Illustrate discussion and thought, leading to solution of systems of ordinary differential equations
Intellectual Skills	<ul style="list-style-type: none"> * Conclude the essential facts, concepts, principles and theories relating to the linear first order ordinary differential equations
Professional Skills	<ul style="list-style-type: none"> * Apply the methods of solution of the second order linear ordinary differential equations * Construct Physical problems and find suitable solutions for their problems.
General Skill	<ul style="list-style-type: none"> * Apply the learned concepts in other areas such as physical, sciences and * Apply the learned concepts in other areas such as physical, sciences and

Course Contents

- 1 - Infinite series and tests for convergence, Series solutions of first and second order linear Ordinary differential equations near an Ordinary and a regular singular points, Systems of first order ordinary differential equations, Sturm - Liouville Boundary Value Problems

Teaching and Learning Methods

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| 1 - Lectures using whiteboard. |
| 2 - Problem discussions with students. |
| 3 - Independent search of students about certain results or applications. |

Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
Midterm examination 1	first week 7	25%
Midterm examination 2	first week 12	25%
Final Examination	week 15	50%

Books and References

Essential books	Elementary Differential Equations and Boundary Value Problems, W. E. Boyce and R. C. DiPrima, 8th ed. 2000.
Recommended books	Elementary Differential Equations , E. D. Rainville and P. E. Bedient, 1981.