



Course Descriptor
MATH 2001 Mathematics

Proposed Academic Year	2021 – 2022	Last Reviewed Academic Year	2020 – 2021
Course Code	MATH2001	Course Title	Mathematics
Credit hours	4	Level of study	Undergraduate
College / Centre	College of Applied and Health Sciences	Department	Basic Sciences
Co-requisites	--	Pre-requisites	CALCULUS I

1. COURSE OUTLINE

The application of the mathematics in engineering and construction management. The topics includes differentiation and integration, series, hyperbolic functions, matrices and Probability.

2. AIMS

This course focuses on some essential goals, which are:
Apply differentiation and integration techniques, solve ordinary simple ordinary differential equations, perform operations on matrices, define the hyperbolic functions, evaluate the probability and the normal distribution, and use series to approximate functions.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes	Teaching and Learning methods	Assessment
Upon successful completion of this course, students will be able to:		
1. Apply differentiation, integration techniques and solve simple ordinary differential equations.	Online Lecture/ discussion/ presentations/ solve examples and exercises. Use of available software	<i>Quizzes, Mid-term, Final exam, Participation, Assignment</i>
2. Perform operations on matrices.	Online Lecture/ discussion/ presentations/ solve examples and exercises. Use of available software	<i>Quizzes, Mid-term, Final exam, Participation, Assignment</i>
3. Define the hyperbolic functions.	Online Lecture/ discussion/ presentations / solve examples and exercises. Use of available software.	<i>Quizzes, Mid-term, Final exam, Participation, Assignment</i>
4. Solve some problems related to probability and normal distributions.	Online Lecture/ discussion/ presentations/ solve examples and exercises. Use of available software	<i>Quizzes, Final exam, Participation</i>



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5. Use series to approximate functions	Online Lecture/ discussion/ presentations/ solve examples and exercises. Use of available software	<i>Quizzes , Final exam ,Participation</i>
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4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Mid-term Examination	20
Assignment / HomeWorks	10
Quizzes	20
Participation / Questions	10
Final Examination	40
TOTAL	100%

5. ACHIEVING A PASS

Students will achieve **4** credit hours for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%**

6. COURSE CONTENT (Indicative)

CHAPTER1. Differentiation and Integration:

1.1 Differentiation

1.2 Implicit differentiation

1.3 Parametric differentiation

1.4 Integration

1.5 Application of Integration

CHAPTER2. Ordinary Differential Equations

CHAPTER3. Matrices and Determinants

CHAPTER4. Hyperbolic Functions

CHAPTER5. Probability

5.1 Probability

5.2 The Normal Distribution

CHAPTER6. series

6.1 introduction to Series

6.2 Binomial Series

6.3 McLaurin and Taylor series

TOTAL HOURS:

45



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RECOMMENDED INDEPENDENT STUDY HOURS:	15
TOTAL COURSE HOURS:	60

7. RECOMMENDED REFERENCES

Core text/s:

1. K. A. Stroud and Dexter J Booth (2013) Engineering Mathematics, 7th Edition, Palgrave MacMillan.
2. W Cox (1996) Ordinary Differential Equations, Elsevier.

Other Reference Material:

1. Kuldeep Singh (2011) Engineering Mathematics through Applications; 2nd Edition, Palgrave MacMillan
2. <https://ocw.mit.edu/ans7870/resources/Strang/Edited/Calculus/Calculus.pdf>