



## COURSE OUTLINE



<b>COURSE CODE : DBM2013</b> <b>COUSE NAME : ENGINEERING MATHEMATICS 2</b>	<b>Date of issue : 25 NOVEMBER 2016</b> <b>Page : Page 1 of 6</b>
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<b>COURSE</b>	<b>: DBM2013 ENGINEERING MATHEMATICS 2</b>
<b>PROGRAMME</b>	<b>: DAD2-S2</b>
<b>INSTRUCTIONAL DURATION</b>	<b>: 15 WEEKS</b>
<b>CREDIT(S)</b>	<b>: 3</b>
<b>PREREQUISITE(S)</b>	<b>: NONE</b>

### SYNOPSIS

**ENGINEERING MATHEMATICS 2** exposes students to the basic laws of exponents and logarithms. This course also introduces the basic rules of differentiation concept to solve problems that relate maximum, minimum and calculate the rates of changes. This course also discuss integration concept in order to strengthen student knowledge for solving area and volume bounded region problems. In addition, students also will learn application of both techniques of differentiation and integration.

Prepared by:	Certified by:
Name :	Name :
Signature :	Signature :
Date :	Date :

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### **COURSE LEARNING OUTCOMES (CLO)**

Upon completion of this course, students should be able to:

<b>CLO</b>	<b>Course Learning Outcome</b>	<b>Programme Learning Outcome(s)</b>	<b>Taxonomies &amp; Soft-Skills</b>	<b>Assessment Methods</b>	<b>Recommended Delivery Methods</b>
CLO1	Solve the mathematical problems by using appropriate mathematical techniques and solutions.	PLO1	C3	Quiz and Test	Interactive Lecture, Tutorial Exercise.
CLO2	Show the solution for differentiation and integration problem by using appropriate method.	PLO1	C3	Assignment	Interactive Lecture, Tutorial Exercise, Discussion.
CLO3	Practice mathematical knowledge and skills in different mathematics problem.	PLO1	C3	Tutorial Exercises	Interactive Lecture, Tutorial Exercise.

<b>PLO</b>	<b>Program Learning Outcome</b>
PLO1	Apply knowledge of mathematics, science, engineering fundamentals to well-defined mechanical engineering procedures and practices with specialization in automotive.

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**DISTRIBUTION OF STUDENT LEARNING TIME**

TOPIC	DEPENDENT LEARNING (HOURS)			INDEPENDENT LEARNING (HOURS)						Final Examination (HOURS)	TOTAL SLT	
	Lectures	Tutorial	ContinuourAs Assessment	Lectures	Tutorial	Assignment	Quiz	Test	Final Examination			
TOPIC 1	4	4	1	4	2		2			4	2	120
TOPIC 2	14	14		14	7	1.5						
TOPIC 3	12	12	1	12	6	1.5		2				
TOTAL	30	30	2	30	15	3	2	2	4	2	120	

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### WEEKLY SCHEDULE

ACADEMIC WEEK	TOPIC/SUBTOPIC	Assessment
2-3	<p><b><u>1.0 EXPONENTS AND LOGARITHMS</u></b></p> <p>1.1 Understand laws of exponents 1.2 Understand laws of logarithms</p>	Quiz 1&2
4 -5,7-10,12-13	<p><b><u>2.0 DIFFERENTIATION</u></b></p> <p>2.1 Understand rules of differentiation 2.2 Understand derivatives of exponential functions 2.3 Understand derivatives of logarithmic functions. 2.4 Understand derivatives of trigonometric functions 2.5 Understand derivatives of inverse trigonometric functions 2.6 Understand second order differentiation 2.7 Understand the application of differentiation 2.8 Understand parametric equation 2.9 Perform application of differentiation in real problems. 2.10 Understand implicit differentiation 2.11 Understand partial differentiation 2.12 Understand the technique of total differentiation</p>	Tutorial Exercise 1&2, Assignment 1
14-18	<p><b><u>3.0 INTEGRATION</u></b></p> <p>3.1 Understand indefinite integrals 3.2 Understand definite integrals 3.3 Understand integral of reciprocal function 3.4 Understand integral of exponent function 3.5 Understand integration by substitution. 3.6 Understand integral of trigonometric function 3.7 Understand integral of inverse trigonometric function. 3.8 Understand integration by part. 3.9 Understand integration involving partial fraction. 3.10 Apply the techniques of integration</p>	Test 1, Tutorial Exercise 3, Assignment 2

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### ASSESSMENT

Components	Topic	Assessment Method	Quantity of Assessment	Percentage	Total
<b>Continuous Assessment (CA)</b>	<i>Topic 1</i>	Quiz	2	10%	60%
	<i>Topic 2,3</i>	Tutorial Exercise	3	15%	
	<i>Topic 2,3</i>	Assignment	2	20%	
	<i>Topic 3</i>	Test	1	15%	
<b>Final Examination (FE)</b>	Final Examination is carried out at the end of the semester				40%
					<b>100%</b>

### ATTENDANCE

The student should adhere to the rules of attendance as stated in the latest version of *Arahan-arahan Peperiksaan Dan Kaedah Penilaian*:-

1. Student must attend not less than 80% of lecture hours as required for the course.
2. The student will be prohibited from attending any lecture and assessment activities upon failure to comply the above requirement. Zero mark will be given to the course.



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### **REFERENCES**

#### **Main:**

Bird, J. (2010). *Engineering Mathematics (6th Edition)*. UK: Newnes. (ISBN : 978-0-08-096562-8)

#### **Additional:**

Bird, J. (2010). *Higher Engineering Mathematics (6th Edition)*, UK: Newnes. (ISBN: 978-1-85-617767-2)

Larson, R. & Edwards, B.H. (2013). *Calculus (10th Edition)*, USA: Cengage Learning. (ISBN: 978-1-285-05709-5)

Stroud, K. A., & Booth, D. J. (2011). *Advanced Engineering Mathematics (5th Edition)*, New York: Industrial Press Inc. (ISBN: 978-0-8311-3449-5)

Stroud, K. A., & Booth, D. J. (2013). *Engineering Mathematics (7th Edition)*, New York: Industrial Press Inc. (ISBN: 978-0-8311-3470-9)