

SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course/Module/Subject	Calculus							
2.	Course/Subject Code	PCM0235							
3.	Status of Subject	Core							
4.	MQF Level/Stage	Foundation							
5.	Version	Date of previous version : June 2015							
		Date of current version: August 2015							
6.	Pre-Requisite	PAM0135 – Algebra							
7.	Name(s) of academic/teaching staff	Heng Chai Yen, Mohd Daud Hassan							
8.	Semester and Year offered	Trimester 2							
9.	Objective of the course in the programme : To expose students to the basic topics in calculus and prepare them with basic knowledge in differentiation and integration.								
10.	Justification for including the course in the programme : To equip and prepare students with the basic calculus in preparation for the mathematic courses in degree.								
11.	Course Learning Outcomes :	Domain						Level	
	LO1 Solve the problems related to limits of various functions	Cognitive						Level 3	
	LO2 Use various techniques to solve the derivative and integration for different types of functions	Cognitive						Level 3	
	LO3 Solve the problems related to applications of differentiation and integration	Cognitive						Level 3	
	LO4 Solve the first and second order of differential equations.	Cognitive						Level 3	
12.	Mapping of Learning Outcomes to Programme Outcomes :								
	Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
	LO1	X	X				X		
	LO2	X	X				X		
	LO3	X	X				X		
	LO4	X	X				X		
13.	Assessment Methods and Types :								
	Method and Type	Description/Details				Percentage			
	Quiz	Written quizzes				20%			

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	Test	Written tests			30%
	Final Examination	Written examination			50%
14.	Mapping of assessment components to learning outcomes (LOs)				
	Assessment Components	LO1	LO2	LO3	LO4
	Quiz	20.00	20.00	20.00	28.57
	Test	30.00	30.00	30.00	
	Final Examination	50.00	50.00	50.00	71.43
15.	Details of Course				
	Topics	Mode of Delivery (eg : Lecture, Tutorial, Workshop, Seminar, etc.) Indicate allocation of SLT (lecture, tutorial, lab) for each subtopic			
		Lecture	Tutorial		
	Limits and Continuity Limits by intuitive and computation approaches; Continuity for polynomials, rational functions, functions involve radicals, piece-wise, composite, and trigonometry functions; One sided limits; Limits at infinity; Infinite limits; Tangents and derivatives at a point.	7	2		
	Derivatives Concept of slope of tangent lines; Differentiability; Differentiation rules and techniques: Chain rule; Power rule; Power rule combined with the chain rule; Derivatives of trigonometric function, logarithmic function, and exponential functions; Logarithmic differentiation; Implicit differentiation and higher derivatives.	7	2		

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	<p>Applications of Differentiation Tangents and normals; Related rates problems; Maximum and minimum values; Increasing and decreasing functions; Critical points; Local extrema; Absolute extrema; Concavity of a function; Inflection points; Applied maximum and minimum problems. Motions along straight line; Displacement, Velocity, Acceleration.</p>	8	2
	<p>Integration The indefinite and definite integrals; Integration techniques and formulas; Integrating polynomial, trigonometric, logarithmic and exponential functions; Integration techniques: Substitution, integration by parts, and integration by partial fraction decomposition.</p>	7	2
	<p>Applications of Integration Area under a curve and between curves; Volumes of solids of revolution.</p>	6	2
	<p>Differential Equations First order linear differential equations: Separation of variables; Integrating factor methods; Second order linear differential equations with constant coefficients: Homogeneous equation.</p>	4	2
	TOTAL	39	12
16.	Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning
	Lecture	39	59
	Tutorial	12	12
	Test	2	8
	Final Exam	2	20
	Quiz	3	3
	Sub Total	58	102
	Total SLT	160	
17.	Credit Value	4	

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18.	Reading Materials :			
	Textbooks			
	Thomas Jr.,G.B; Weir,M. B; Hass,J.R (2014). Thomas' calculus early transcendentals (12th ed.). Pearson.			
	Reference Material (including 'Statutes' for Law)			
	Larson, R. & Edwards, B. (2014). Calculus (10th ed.). Boston: Brooks/Cole.			
	Adams, R.A. & Essex, C. (2013). Calculus (8th ed.). Ontario: Pearson Canada Inc.			
Weir, M.D. & Hass, J. (2014). Thomas' calculus (13th ed.). Boston: Pearson Education, Inc.				
Appendix (to be compiled when submitting the complete syllabus for the programme) :				
1. Mission and Vision of the University and Faculty				
2. Programme Objectives or Programme Educational Objectives				
3. Programme Outcomes (POs)				
4. Mapping of POs to the 8 MQF domain				
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :				
Subject	Learning Outcomes (please state the learning Outcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
ABC1234	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
6. Summary of LO to PO measurement				
7. Measurement and Tabulation of result for LO achievement				
8. Measurement Tabulation of result for PO achievement				