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| 1. | **Course Title** | **Mathematics For Information Technology** | | |
| 2. | **Course Code** | **CMTH3513** | | |
| 3. | **Status** | Faculty | | |
| 4. | **Credit Hour** | 3 (2+1)<br>2 lecture (2 hours lecture x 14 weeks)<br>1 tutorials (1.5 hours per x 14 weeks) | | |
| 5. | **Semester/Year** | 2/3 | | |
| 6. | **Prerequisites** | CMTH1513 Discrete Mathematics | | |
| 7. | **Teaching method:** | Distance Learning (Electronic) | | |
| 8. | **Evaluation** | **Assessment and Marking Percentage:**<br>Participation 5%<br>Quizzes 10%<br>Exercises 5%<br>Project 10%<br>Mid Sem Exam 20% | | |
| 9. | **Lecturer** | | | |
| 10. | **Objective of the Subject** | By the end of the subject. Students must be able to:<br>• understanding the terms and concepts of the derivatives<br>• understand the definition of integration, definite integral and indefinite integral<br>• apply the rules in differentiation and integration<br>• apply the differentiation and integration of trigonometric functions<br>• apply the equation of the tangent and normals and extremum problems in differentiation | | |
| 11. | **Learning Outcomes** | By the end of the subject, students should be able to:<br>• explain the terms and concepts of the derivatives<br>• explain the definition of integration, definite integral and indefinite integral<br>• solve the differentiation and integration problems by using basic rules<br>• solve the differentiation and integration of trigonometric functions<br>• solve the equation of the tangent and normals and extremum problems in differentiation | | |
| 12. | **Synopsis** | This course provides calculus topics such as differentiation and integration. The topics are completely different from those of algebra and geometry because in these topics student will learn important rules for finding derivatives and how to use it to analyze the rate of change of quantity. Integral calculus is concerned with the reverse process of the derivatives. There is one (1) special topic for function; there are logarithmic functions, exponential functions and trigonometric. | | |
| 13. | **Topics** | Details | Lecture (Hrs) | Tutorial (Hrs) |
| | **Topic 1** | **CHAPTER 1: FUNCTIONS**<br>1.1 Logarithmic Functions<br>1.2 Exponential Functions<br>1.3 Trigonometric | 4 | 3 |
| | **Topic 2** | **CHAPTER 2: DIFFERENTIAION**<br>2.1 Rules for differentiation<br>2.2 Product rule<br>2.3 Quotient rule<br>2.4 Chain rule<br>2.5 Power rule<br>2.6 Derivatives of logarithmic functions<br>2.7 Derivatives of exponential functions<br>2.8 Derivatives of trigonometric functions<br>2.9 Higher order defrivatives | 16 | 12 |

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| | | 2.10 Applications of differentiation<br>2.10.1 Equations of tangents and normals<br>2.20.2 Stationary points: Maxima and minima | | |
| | **Topic 3** | **CHAPTER 3: INTEGRATION**<br>3.1 The indefinite integral<br>3.2 Integration with initial conditions<br>3.3 The definite integral<br>3.4 Integration of simple exponential<br>3.5 Integration using partial fractions<br>3.7 Area under the curve | 8 | 6 |
| | | Total contact hours | 28 | 21 |
| | | Equivalent lecture hours | 28 | 14 |
| | | Total lecture hours | 42 | |
| | | Credit hours | 3 | |
| 14. | **Main reference: Textbook:** | 1. Sim O. B., Yong L. K., Siti Eishah Ishak, Fauzi Mohamed Yusof, R. Suzita R. Suleiman, **Mathematics for Matriculation Semester 1**:, 1st Edition, Penerbit Fajar Bakti Sdn. Bhd.<br>2. Eng T. C., Sim O. B., Hwa K. B., Soon L. M, **Mathematics for Matriculation Semester 2**:, 1st Edition, Penerbit Fajar Bakti Sdn. Bhd.<br>3. Cheryl M. Rose, Leslie Minton, and Carolyn B. Arline , **Uncovering Student Thinking in Mathematics: 25 Formative Assessment Probes** ( 2006) | | |
| 15. | **Additional References:**<br><br>**Other Materials:** | G. H. Hardy, **A Course Of Pure Mathematics - Illustrated** (2006)<br><br>All materials will be available to the students online. | | |