**COURSE SPECIFICATION**

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| This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification. |

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| University of Baghdad | 1. Teaching Institution |
| College of Engineering/ Electronics and Communications Department | 2. University Department/Centre |
| Mathematics I/ 101 ECM | 3. Course title/code |
| Mathematics II, Engineering Analysis, Communications I & II, Fields, Antennas, Control Theory, Probability, Information DSP. | 4. Programme(s) to which it contributes |
| In class face-to-face mode | 5. Modes of Attendance offered |
| 1st-2nd / 2015-2016 | 6. Semester/Year |
| 4 hrs per week/ 120 hrs total | 7. Number of hours tuition (total) |
| 15/2/2016 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| To make the student acquainted with the essential mathematical tools that are necessary for his academic study of the various subjects in electronic and communications engineering | |
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| 10· Learning Outcomes, Teaching ,Learning and Assessment Method |
| 1. Knowledge and Understanding   A1. Basic Concepts of single variable calculus.  A2.  A3.  A4.  A5.  A6 . |
| B- Subject-specific skills  B1. Graph of Functions  B2. Limits and Continuity  B3. Differentiation  B4. Integration |
| Teaching and Learning Methods |
| 1- Lectures.  2- Tutorials.  3- Homework and Assignments.  4- Tests and Exams.  5- In-Class Questions and Discussions. |
| Assessment methods |
| 1. Quizzes: 10% 2. 1st term exam: 10% 3. 2nd term exam: 10% 4. Final exam: 70% |
| C. Thinking Skills  C1.  C2.  C3.  C4. |

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| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1.  D2.  D3.  D4. |

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| 11. Course Structure | | | | | |
| Assessment Method | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours | Week |
|  |  |  |  |  | 1 |
|  |  |  |  |  | 2 |
|  |  |  |  |  | 3 |
|  |  |  |  |  | 4 |
| Quiz/Exam | Lectures | Line equation |  | 4 | 5 |
| Quiz/Exam | Lectures | Graph of functions |  | 4 | 6 |
| Quiz/Exam | Lectures | Trigonometric functions |  | 4 | 7 |
| Quiz/Exam | Lectures | The Limit |  | 4 | 8 |
| Quiz/Exam | Lectures | Continuity |  | 4 | 9 |
| Quiz/Exam | Lectures | Definition of derivative and tangent slope |  | 4 | 10 |
| Quiz/Exam | Lectures | Rules of derivative |  | 4 | 11 |
| Quiz/Exam | Lectures | Related rate of change |  | 4 | 12 |
| Quiz/Exam | Lectures | Maxima and minima |  | 4 | 13 |
| Quiz/Exam | Lectures | Graph of functions using derivatives and asymptotes |  | 4 | 14 |
| Quiz/Exam | Lectures | Newton’s method of finding roots of equations |  | 4 | 15 |
| Quiz/Exam | Lectures | Definite and indefinite integral |  | 4 | 16 |
| Quiz/Exam | Lectures | Area under the curve |  | 4 | 17 |
| Quiz/Exam | Lectures | Natural logarithm |  | 4 | 18 |
| Quiz/Exam | Lectures | Numerical integration |  | 4 | 19 |
| Quiz/Exam | Lectures | Volume of solid of revolution |  | 4 | 20 |
| Quiz/Exam | Lectures | Area of surface of revolution |  | 4 | 21 |
| Quiz/Exam | Lectures | Length of curve |  | 4 | 22 |
| Quiz/Exam | Lectures | Transcendental functions |  | 4 | 23 |
| Quiz/Exam | Lectures | Exponential functions |  | 4 | 24 |
| Quiz/Exam | Lectures | L’hopitals Rule of finding limit |  | 4 | 25 |
| Quiz/Exam | Lectures | Inverse trigonometric functions |  | 4 | 26 |
| Quiz/Exam | Lectures | Algebraic procedures for integration |  | 4 | 27 |
| Quiz/Exam | Lectures | Integration by parts |  | 4 | 28 |
| Quiz/Exam | Lectures | Integration of power of trigonometric functions |  | 4 | 29 |
| Quiz/Exam | Lectures | Trigonometric substitutions |  | 4 | 30 |
| Quiz/Exam | Lectures | Partial Fractions |  | 4 | 31 |

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| 12. Infrastructure | |
| **Ross L. Finney and George B. Thomas Jr., *Calculus*, 1990, Addison Wesley Publishing.**  **Maurice D. Weir, Joel Hass, and Frank R. Giordano, *Thomas’ Calculus*, 2008, Person International Edition.** | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| None | Special requirements (include for example workshops, periodicals, IT software, websites) |
| None | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | |
| According to ministry requirements | Pre-requisites |
| 10 | Minimum number of students |
| 50 | Maximum number of students |