Republic of Iraq

Ministry of Higher Education & Scientific Research

Supervision and Scientific Evaluation Directorate

Quality Assurance and Academic Accreditation

InternationalAccreditation Dept.

Academic Program Specification Form For The Academic Year 2017-2018

Universitiy: Baghdad

College : Engineering

Number Of Departments In The College : 12 Twelve

Date Of Form Completion : April – 3 / 2018

Dean ’s Name

Date : / 4 / 2018

Signature

Dean ’s Assistant For Scientific Affairs

Date : / / 2018

Signature

The College Quality Assurance And University Performance Manager

Date: / / 2018

Signature

Quality Assurance And University Performance Manager

Date : / / 2018

Signature

**TEMPLATE FOR COURSE SPECIFICATION**

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| HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW |

**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 anddemonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program me specification. |

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| College of Engineering  University of Baghdad | ***1. Teaching Institution*** |
| Mechanical Engineering Department  (MED) | ***2. University Department/Centre*** |
| The general learning objective of this course is for students to develop a firm understanding of the basic principles describing the mathematics methods, and at the same time become generally proficient in applying these principles to practical engineering problems | ***3. Course title/code& Description*** |
| Mechanical Engineering ( ME) | ***4. Program me(s) to which itContributes*** |
|  | ***5. Modes of Attendance offered*** |
| 1st& 2nd / Academic Year 2017-2018 | ***6. Semester/Year*** |
| 120 hrs. / 4 hrs. per week | ***7. Number of hours tuition (total)*** |
| April -3 /2018 | ***8. Date of production/revision of this specification*** |
| ***9. Aims of the Course***  1-improving student ability in mathematics which is the most important basic science in engineering studies.  2-Improving the academic abilities of the faculty and attracting highly skilled personnel.  3-Improve the abilities of management and technical support staff and attract the  highly skilled for employment.  4-Cooperation, academic exchange programs, partnerships with other universities and academic centers in developed countries. | |
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| ***10·Learning Outcomes*** |
| 1. An ability to apply knowledge of mathematics, science, and engineering. 2. An ability to function on multi-disciplinary teams. 3. An ability to identify, formulates, and solves mathematics problems. 4. An understanding of professional and ethical responsibility. 5. An ability to communicate effectively. 6. A recognition of the need for, and an ability to engage in life-long learning. 7. Knowledge of contemporary issues. 8. An ability to use knowledge and skills in mathematics practice. |
| ***11.Teaching and Learning Methods*** |
| **1-. Lectures.**  **2- Tutorials**  **3- . Homework and Assignments**  **4- Tests and Exams.**  **5- In-Class Questions and Discussions.**  **6- Connection between Theory and Application.**  **7- Extracurricular Activities.**  **8- In- and Out-Class oral conservations**. |
| ***12. Assessment Methods*** |
| ***13. Grading Policy*** |

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| ***14. Course Structure*** | | | | | |
| Assessment Method | Teaching Method | Unit/Module or Topic Title | LOs  (article 10) |  | Week |
| 1-4 article(12) | 1-8 of article (11) | Domain & Rang | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 1 |
| 1-4 article(12) | 1-8 of article (11) | Inequalities, Simple Functions  Trigonometric FunctionsDefinitions  Even ,odd, Increasing , Decreasing. | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 2 |
| 1-4 article(12) | 1-8 of article (11) | Algebra of Function Symmetry | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 3 |
| 1-4 article(12) | 1-8 of article (11) | Limits and Continuity | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 4 |
| 1-4 article(12) | 1-8 of article (11) | Differentiability, Diff. at all x , diff. at x=a ; Left & right Diff., Equation of A Straight Line 3- Implicit Diff. | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 5 |
| 1-4 article(12) | 1-8 of article (11) | Application of the Derivative, Plotting A Curve Velocity and Acceleration. | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 6 |
| 1-4 article(12) | 1-8 of article (11) | Inverse Trigonometric Functions | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 7 |
| 1-4 article(12) | 1-8 of article (11) | Integration , Formula , Definite Integral  Logarithmic Functions (Natural and General Logarithm of X ,  changing the base, Integral & Derivative | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 8 |
| 1-4 article(12) | 1-8 of article (11) | Integration , Formula Definite Integral, Exponential Functions | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 9 |
| 1-4 article(12) | 1-8 of article (11) | L’ Hospital Rule.  Hyperbolic Functions Integrals &Derivative | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 10 |
| 1-4 article(12) | 1-8 of article (11) | Inverse Hyperbolic | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 11 |
| 1-4 article(12) | 1-8 of article (11) | Functions Integrals & Derivative | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 12 |
| 1-4 article(12) | 1-8 of article (11) | Methods of Integration,  Trigonometric substitutions | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 13 |
| 1-4 article(12) | 1-8 of article (11) | Completing the squares | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 14 |
| 1-4 article(12) | 1-8 of article (11) | Integration by parts | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 15 |
| 1-4 article(12) | 1-8 of article (11) | Partial Fractions | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 16 |
| 1-4 article(12) | 1-8 of article (11) | Integrals involve Sin(nx), Cos(mx) m ≠ n | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 17 |
| 1-4 article(12) | 1-8 of article (11) | The assumption Z= tan(x/2). | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 18 |
| 1-4 article(12) | 1-8 of article (11) | Improper Integral Definite Integral consists of proper Improper | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 19 |
| 1-4 article(12) | 1-8 of article (11) | Numerical Integration (Trapezoidal Rule , Simpson’s Rule) | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 20 |
| 1-4 article(12) | 1-8 of article (11) | Application of a definite integral, Area under a curve and between two curves | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 21 |
| 1-4 article(12) | 1-8 of article (11) | Application of a definite integral Volumes | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 22 |
| 1-4 article(12) | 1-8 of article (11) | Application of a definite integral Arc Length | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 23 |
| 1-4 article(12) | 1-8 of article (11) | Application of a definite integral Surface area of rotation | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 24 |
| 1-4 article(12) | 1-8 of article (11) | Determinants(Simultaneous Linear Equations consists of Non- homogeneous system and homogeneous . | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 25 |
| 1-4 article(12) | 1-8 of article (11) | Inverse matrix method | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 26 |
| 1-4 article(12) | 1-8 of article (11) | Eigen values and Eigen vectors for Matrix | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 27 |
| 1-4 article(12) | 1-8 of article (11) | Complex Numbers | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 28 |
| 1-4 article(12) | 1-8 of article (11) | De’moivre’s theorem, Cartesian representation of z, Polar | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 29 |
| 1-4 article(12) | 1-8 of article (11) | Roots of Equati | a,b,c,d,e,f,g,h | 4  2 the.  2 tut. | 30 |

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| ***15. Infrastructure*** | | |
| ***Textbook***  Mathematics -Saad Al-Jumaily  ***References***   1. Thomas’ Calculus ,7th Edition 2. Any related Websites ,which facilitate the materials to the students such as :   -[calculus@math.ucdavis.edu](mailto:calculus@math.ucdavis.edu).  - www.zweigmedia.com/  -www.gigapediA.org | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER | |
|  | Special requirements (include forexample workshops, periodicals,IT software, websites) | |
|  | Community-based facilities  (include for example, guest  Lectures , internship,field studies) | |
| ***16. Admissions*** | | |
|  | | Pre-requisites |
| / | | Minimum number of students |
| 77 | | Maximum number of students |
| Asst. Lecturer Saher Emad | | ***17. Course Instructors*** |

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