**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 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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| College of Engineering  University of Baghdad | ***1. Teaching Institution*** |
| Mechanical Engineering Department (MED) | ***2. University Department/Centre*** |
| **part 1/** \*Fortran 90 Language  &Autocad program  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  **part 2/** \*Logic &interface  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  The course is taught through 5 hrs per week, 3 theories and 2 experimental. | ***3. Course title/code& Description*** |
| Mechanical Engineering ( ME ) | ***4. Programme(s) to which itContributes*** |
| Annual System ; There is only one mode  of delivery, which is a “Day Program”.  The students are full time students, and on  campus. They attend full day program in  face-to-face mode. The academic year is  composed of 30-week regular subjects. | ***5. Modes of Attendance offered*** |
| 1st&2nd / Academic Year 2017 – 2018 | ***6. Semester/Year*** |
| 150 hrs. / 5 hrs. per week | ***7. Number of hours tuition (total)*** |
| 12/10 / 2017 | ***8. Date of production/revision of this specification*** |
| ***9. Aims of the Course*** | |
| \*Fortran is useful for a wide variety of application as below:   * Fortran is a simple language * Fortran has always existed * Fortran compilers are generally available * Earlier the first programming language * Used commercially for technical and scientific computations * Good at numerical analysis and technical calculations * It is necessary to structure the problem in order to use Fortran * A large number of programs and routines in Fortran are exchanged internationally * Efficient compilers * The first standardized programming language * Better standard obedience than other languages * Is continually developed (a new version each decade) * The dominating language on supercomputers   \*Autocad  AutoCAD software provides the design and the shape for the products that needs to be created-  It provides flexible and user friendly features with the tools to design the applications and document the workflows-  -This involves aggregate and import models for the formats and usually allows the design to get created without any change in source model  -It provides tools to provide the formats by detailed designing the layouts and drawings using the views automatically  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  \*Logic &interface | |

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| ***10·Learning Outcomes***  \* Fortran is the dominant programming language used in scientific applications. It is therefore important for physics (or engineering) students to be able to read and modify Fortran code.  \* autocad  AutoCAD, used for drafting or engineering design, is a software application. CAD, which can stand for either Computer Aided Design or Computer Aided Drafting, can help engineers draw 3D or 2D drawings or models. |
| \*Logic &interface |
| ***11.Teaching and Learning Methods*** |
| 1. Lectures.  2. Tutorials.  3. Homework and Assignments.  4. Tests and Exams.  6. In-Class Questions and Discussions.  7. Connection between Theory and Application.  . |
| ***12. Assessment Methods***  1. Examinations, Tests, and Quizzes.  2. Extracurricular Activities.  3. Student Engagement during Lectures.  4. Responses Obtained from Students, Questionnaire about  Curriculum and Faculty Member ( Instructor ). |
| ***13. Grading Policy***  1. Quizzes:  - There will be a ( 15 – 20 ) closed books and notes quizzes during the academic year.  - The quizzes will count 20% of the total course grade.  2. Tests, 2-3 Nos. and will count 10% of the total course grade.  3. Extracurricular Activities, this is optional and will count extra  marks ( 1 – 5 % ) for the student, depending on the type of activity.  4. Final Exam:  - The final exam will count 60% of the total course grade |

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| ***14. Course Structure*** | | | | | |
| Assessment  Method | Teaching  Method | Unit/Module or  Topic Title | LOs  ( Article  10 ) | Hours | Week |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Fortran symbols  Constants  Variables  (E- Notation)  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp | 1 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Variables  Arithmetic expression  Library function  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 2 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Input statements  Output Statements  End statements  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 3 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Control statements  Unconditional Go To statements  Conditional Go To statement  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | a,b | 5  3 the.  2 exp. | 4 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Conditional Go To statement  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | a,b | 5  3 the.  2 exp. | 5 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Arithmeti (IF) statements  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | a,b | 5  3 the.  2 exp. | 6 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  If - then statements If- then –else- structure Nested If structure  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 7 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Do loop statements  Do statement  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 8 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Continue statements  Nested Do loops  Factorial  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 9 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Dimension statement  One dimension  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 10 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Dimension statement  Two dimension  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 11 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Library Functions  Internal Function  External Function  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 12 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Subroutines  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 13 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Engineering and Scientific applications  Finding roots of equations  Itarative method  Newton Raphson method  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 14 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Engineering and Scientific applications  Numerical integration  Trapezoidal rule  Simpson rule  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | a,b | 5  3 the.  2 exp. | 15 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  AutoCAD  Standard Toolbars  Object Properties  status bar  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | c | 5  3 the.  2 exp. | 16 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Grid  Draw  Zoom  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | c | 5  3 the.  2 exp. | 17 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Object Snap  Create Drawings  modify  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2/ | c | 5  3 the.  2 exp. | 18 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Type of dimension  Absolute& Incremental  Text  Hatch  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 19 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Application -1-  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 20 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Application -2-  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 21 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Three dimension( figures)  Solidbody  Shade  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 22 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Three dimension( figures)  Solidbody  Shade  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 23 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Operations  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 24 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Extrude  Thickness  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 25 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Sections  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 26 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  View ports  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 27 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Project -1-  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 | c | 5  3 the.  2 exp. | 28 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Project -2-  \*\*\*\*\*\*\*\*\*\*\*\*\*\* | c | 5  3 the.  2 exp. | 29 |
| 1 – 4 of article (12) | 1 – 7 of article (12) | Part 1/  Application -1-  \*\*\*\*\*\*\*\*\*\*\*\*\*\*  Part 2 |  | 5  3 the.  2 exp. | 30 |

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| ***15. Infrastructure*** | | |
| 1- أ.د. عوض منصور & د. محمود اباظه ،" المرجع الاساس في برمجة وتطبيقات فورتران 90 " ، الطبعة الاولى ، 1994.  2- "Fortran 90 Handbook" by Walter S. Brainerd, Jeanne C. Adams, Jeanne T.Martin, Brian T. Smith, and Jerrold L. Wagener 1992.  3- Auto Cad 2002"" المؤسسة العامة للتعليم الفني والتدريب المهني.  <http://www.boosla.com>    4-"AutoCAD2008 Tutorial: 3D Modeling" by Randy H. Shih (2008) | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER | |
| - Application in laboratory  - Available websites related to the subject.  - Extracurricular activities | Special requirements (include forexample workshops, periodicals,IT software, websites) | |
| * Field and scientific visits * Extra lectures | Community-based facilities  (include for example, guest  Lectures , internship,field studies) | |
| ***16. Admissions*** | | |
| ME 101& ME 102 Courses | | Pre-requisites |
| / | | Minimum number of students |
| 70 | | Maximum number of students |
| Instructor  Part 1 :  Dr. Sajida Lafta Ghashim  Lecturer of Mechanical Engineering /Thermo- Fluid  Mech. Eng. Dept.  College of Engineering  University of Baghdad  Email: Sajda\_lafta@yahoo.com  Sajida.lafta@gmail.com  Part 2 : | | ***17. Course Instructors*** |

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