**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 may 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*** |
| Manufacturing processes 2 ( third year) | ***3. Course title/code & Description*** |
| Mechanical Engineering ( ME ) | ***4. Programme(s) to which it Contributes*** |
| Anual system | ***5. Modes of Attendance offered*** |
| year | ***6. Semester/Year*** |
| 4 hour in week ( 2 hour theoretical and 2 hour work shop) for each class | ***7. Number of hours tuition (total)*** |
| October 2017 | ***8. Date of production/revision of this specification*** |
| ***9. Aims of the Course*** | |
| To give basic fundamental knowledge to the student in the subject of manufacturing process and application in engineering industry . As well as practical training on some manufacturing processes such as mechanical operations | |

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| ***10·*** ***Learning Outcomes*** |
| Enable the student to Understand how to use the knowledge of this course which may be needed, to improving his ability in problems concerning    applying basic mathematical and scientific concepts for the description and solution of engineering problems,  developing initial proficiency in mechanical engineering disciplines,  developing the ability to conduct experiments, and critically analyze and interpret  data,  performing mechanical engineering integrated design of systems, components, or  processes by means of practical experiences (group projects),  identify, formulate, and solve mechanical engineering problems using modern  engineering tools, techniques, and skills,  collaborating in group projects,  developing their written and oral communication skills through presentations of  project results,  acquiring an appreciation for some of the ethical problems that arise in the exercise of the profession, |
| ***11.*** ***Teaching and Learning Methods*** |
| 1. Lectures.  2. work shop.  3. Homework and Assignments.  4. Tests and Exams.  5. In-Class Questions and Discussions.  6. Connection between Theory and Application.  7. Reports, Presentations, and Posters |
| ***12. Assessment Methods*** |
| Home work  Class activity  exam  Out of class activities  Practice and exam in workshop  ***13. Grading Policy***  1. Quizzes:  - There will be a six closed books and notes quizzes during the academic semester. The quizzes will count 8% of the total course grade.  2. Exams:  - There will be one closed books and notes exam during the academic year,  The mid-term exam will count 4% of the total course grade.  3- Workshop training  - There will be count 20 % of the total course grade.  4. Final Exam:  - The final exam will be comprehensive, closed books and notes,  The final exam will count 40% 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 |
|  | Theoretical + engineering applications | Fundamentals of metal casting |  | 2 | 1 |
|  | Theoretical + engineering applications | Casting processes, solidification of metals, shrinkage |  | 2 | 2 |
|  | Theoretical + engineering applications | permanent mold casting, foundry practice, casting quality, metals for casting, product design consideration |  | 2 | 3 |
|  | Theoretical + engineering applications | permanent mold casting, foundry practice, casting quality, metals for casting, product design consideration |  | 2 | 4 |
|  | Theoretical + engineering applications | Exam +Video presentations on the subject |  | 2 | 5 |
|  | Theoretical + engineering applications | Theory of metal machining  Overview of machining technology |  | 2 | 6 |
|  | Theoretical + engineering applications | theory chip formation in metal machining ,force relationships and the merchant equation |  | 2 | 7 |
|  | Theoretical + engineering applications | power and energy relationships in machining , cutting tempature |  | 2 | 8 |
|  | Theoretical + engineering applications | Machining operation  Machining and part geometry, turning and related operation, |  | 2 | 9 |
|  | Theoretical + engineering applications | drilling and related operation |  | 2 | 10 |
|  | Theoretical + engineering applications | milling |  | 2 | 11 |
|  | Theoretical + engineering applications | Nontraditional machining |  | 2 | 12 |
|  | Theoretical + engineering applications | Exam +Video presentations on the subject |  | 2 | 13 |
|  | Theoretical + engineering applications | Fundamentals of welding  Overview of welding technology |  | 2 | 14 |
|  | Theoretical + engineering applications | The weld joint, physics of welding |  | 2 | 15 |
|  | Theoretical + engineering applications | Exam +Video presentations on the subject |  | 2 | 16 |
|  | Theoretical + engineering applications | Fundamentals of metal forming  Overview of metal forming, material behavior in metal forming |  | 2 | 17 |
|  | Theoretical + engineering applications | temperature in metal forming, strain rate sensitivity, friction and lubrication |  | 2 | 18 |
|  | Theoretical + engineering applications | Bulk deformation process in metal working  Rolling, forging |  | 2 | 19 |
|  | Theoretical + engineering applications | extrusion, wire and bar drawing |  | 2 | 20 |
|  | Theoretical + engineering applications | Exam +Video presentations on the subject |  | 2 | 21 |
|  | Theoretical + engineering applications | Sheet metal working  Cutting operation, bending operation |  | 2 | 22 |
|  | Theoretical + engineering applications | Drawing |  | 2 | 23 |
|  | Theoretical + engineering applications | Exam +Video presentations on the subject |  | 2 | 24 |
|  | Theoretical + engineering applications | Powder metallurgy |  | 2 | 25 |
|  | Theoretical + engineering applications | Powder metallurgy |  | 2 | 26 |
|  | Theoretical + engineering applications | Plastics processes  Extrusion, production of sheet and film |  | 2 | 27 |
|  | Theoretical + engineering applications | Fiber and filament production(spinning),coating processes, injection molding, blow molding |  | 2 | 28 |
|  | Theoretical + engineering applications | Exam +Video presentations on the subject |  | 2 | 29 |
|  | Theoretical + engineering applications | Review and general questions and clarifications on Article |  | 2 | 30 |

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| ***15. Infrastructure*** | | |
| ***Textbook***  . Mikell. P. Grover," **Fundamentals of Modern Manufacturing**", fourth edition ,John wiley&sons ,2010.    * ***References***  1. Serope Kalpakjian, and Stepen Schmid,"Manufacturing Engineering Technology",2009 2. .   ***Others*** | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER | |
| * . | Special requirements (include for example workshops, periodicals, IT software, websites) | |
| * . | Community-based facilities  (include for example, guest  Lectures , internship , field studies) | |
| ***16. Admissions*** | | |
|  | | Pre-requisites |
| 15 | | Minimum number of students |
| 38 | | Maximum number of students |
| ***Instructor:***  ***Assistant Professor*** ***Dr. Ahmed Abdulrasool Ahmed Al -Khafaji***  ***Teaching Assistant:*** | | ***17. Course Instructors*** |

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