**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 |
| Environmental Engineering Department | 2. University Department/Centre |
| Economic Engineering | 3. Course title/code |
| Environmental Engineering Department | 4. Programme(s) to which it contributes |
| Course 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 15-week regular subjects. | 5. Modes of Attendance offered |
| Semester (first semester) | 6. Semester/Year |
| 45 hr/ 3 hrs per week | 7. Number of hours tuition (total) |
| March 1sun, 2015 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| The aims of the course are:  1. To acquire and independently apply concepts and techniques of economic  analysis used to form engineering decisions.  2. To assess cost implication in engineering design and application.  3. To select a preferred course of action based upon monetary and non-monetary  considerations  4. To assess risks and uncertainty associated with engineering economic | |
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| 10· Learning Outcomes, Teaching ,Learning and Assessment Methode |
| 1. Knowledge and Understanding   A1. Understand the methods used in engineering economics.  A2. Analyze and understand the methods of estimating capital investment  A3. Be able to perform and evaluate present worth, future worth, and annual worth analysis on one of more economic alternatives.  A4. Be able to perform and evaluate payback period and capitalized cost on one or more economic alternatives.  A5. Be able to carry out and evaluate benefit cost, life cycle and breakeven point. A6 Analyze and understand the methods for determining depreciation.  A7 Be able to analyze and understand the optimum design and design strategy.  A8. Understand some basic Environmental Engineering Problems. |
| B. Subject-specific skills  B1.  B2.  B3. |
| 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. |
| Assessment methods |
| a. Examinations, Tests, and Quizzes.  b. Extracurricular Activities.  c. Student Engagement during Lectures.  d. Responses Obtained from Students, Questionnaire about curriculum and faculty member (Instructor) |
| C. Thinking Skills  C1.  C2.  C3.  C4. |
| Teaching and Learning Methods |
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| Assessment methods |
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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 |
| (a – d) of article (10) | 1-6 of  article (10) | Optimum economic design |  | 2 (Theo.) +1 (Tutorial | 1 |
| (a – d) of article (10) | 1-6 of  article (10) | cost and asset accounting |  | 2 (Theo.) + 1 Tutorial | 2 |
| (a – d) of article (10) | 1-6 of  article (10) | cost estimation |  | 2 (Theo.) + 3 (Tutorial | 3 |
| (a – d) of article (10) | 1-6 of  article (10) | method for estimating capital cost |  | 2 (Theo.) + 1 Tutorial) | 4 |
| (a – d) of article (10) | 1-6 of  article (10) | method for estimating capital cost |  | 2 (Theo.) + 1 Tutorial | 5 |
| (a – d) of article (10) | 1-6 of  article (10) | taxes and insurance |  | 2 (Theo.) + 3 Tutorial | 6 |
| (a – d) of article (10) | 1-6 of  article (10) | interest and investment cost |  | 2 (Theo.) +1 (Tutorial | 7 |
| (a – d) of article (10) | 1-6 of  article (10) | interest and investment cost |  | 2 (Theo.) + 1 Tutorial | 8 |
| (a – d) of article (10) | 1-6 of  article (10) | interest and investment cost |  | 2 (Theo.) + 1 (Tutorial | 9 |
| (a – d) of article (10) | 1-6 of  article (10) | depreciation |  | 2 (Theo.) + 1 Tutorial | 10 |
| (a – d) of article (10) | 1-6 of  article (10) | depreciation |  | 2 (Theo.) + 1 (Tutorial | 11 |
| (a – d) of article (10) | 1-6 of  article (10) | depreciation |  | 2 (Theo.) + 1 (Tutorial | 12 |
| (a – d) of article (10) | 1-6 of  article (10) | optimum design and design strategy |  | 2 (Theo.) + 1 (Tutorial)l | 13 |
| (a – d) of article (10) | 1-6 of  article (10) | optimum design and design strategy |  | 2 (Theo.) + 1 (Tutorial) | 14 |
| (a – d) of article (10) | 1-6 of  article (10) | optimum conditions in cycle operation. |  | 2 (Theo.) + 1 (Tutorial) | 15 |

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| 12. Infrastructure | |
| Text Book:  1- Plant design and economics for chemical engineers  By  Peters S. And Klaus D.  . | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| Available websites related to the subject.  Extracurricular activities. | Special requirements (include for example workshops, periodicals, IT software, websites) |
| Seminars in the Department. | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | |
|  | Pre-requisites |
| / | Minimum number of students |
| 25 | Maximum number of students |