**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 EngineeringUniversity of Baghdad | 1. Teaching Institution |
| Environmental Engineering Department | 2. University Department/Centre |
| Ecology EnE 206This course introduce the followings:Principles of general ecology, biochemical pathways, kinetics ecosystems structure and function, nutrient cycling, development and application of mass balance models for lake eutrophication, preliminary design of waste ponds and constructed wetlands. Transfer of toxic chemicals in food webs. | 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 (second semester) | 6. Semester/Year |
| 30 hrs/ 2 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: - Learning basic concepts of ecology.- To understand eco-system and the relation with living and non-living matters.- Full knowledge of types of pollutants.-Students fulfill understanding of material and thermal balance.-Understand the material cycling within ecosystem.- Equip students with an understanding of how ecology interacts with major environmental problems and issues facing people and society. |
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| 10· Learning Outcomes, Teaching ,Learning and Assessment Methode  |
| 1. Knowledge and Understanding

a. Understand the basic concepts and principles of ecologyb. Understand the relation between ecosystem and living and non-living matters.c. Students will be able to use units of measurements to trace pollutants in ecosystem.d. Understanding the material and thermal balance in closed systems.e. Understanding the material and thermal balance in open system such as lake Eutrophication.f . Understanding the kinetics of ecosystems structure and functiong.Understanding the cycling of materials within ecosystem.h.Understand the principles of preliminary design of waste ponds and constructed wetlandsi.The students will be able to understand the transfer of toxic chemicals in food websj. Understand that Ecology is the basic step in building and environmental Engineer |
|  B. Subject-specific skillsB1.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.7- Field Trips.8- Extracurricular Activities.9- Seminars.10- In- and Out-Class oral conservations. |
|  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 – B of article (10) | 1-10 ofarticle (10) | Introductory concepts | a, b,j | 2 (Theo.)  | 1 |
| A – B of article (10) | 1-10 ofarticle (10) | Energy flow in ecosystems | a, b, d, e, j | 2 (Theo.)  | 2 |
| A – B of article (10) | 1-10 ofarticle (10) | Mass balance | a, b, d, e, j | 2 (Theo.)  | 3 |
| A – B of article (10) | 1-10 ofarticle (10) | Mass balance | a, b, d, e, j | 2 (Theo.)  | 4 |
| A – B of article (10) | 1-10 ofarticle (10) | Mass balance | a, b, d, e, j | 2 (Theo.)  | 5 |
| A – B of article (10) | 1-10 ofarticle (10) | Energy fundamentals | a, b, d, e, j | 2 (Theo.)  | 6 |
| A – B of article (10) | 1-10 ofarticle (10) | Energy fundamentals | a, b, d, e, j | 2 (Theo.)  | 7 |
| A – B of article (10) | 1-10 ofarticle (10) | Food chain and trophic level  | a, b, f, g, j | 2 (Theo.)  | 8 |
| A – B of article (10) | 1-10 ofarticle (10) | Food chain and trophic level  | a, b, f, g, j | 2 (Theo.)  | 9 |
| A – B of article (10) | 1-10 ofarticle (10) | Nutrient cycles | a, b, f, g, j | 2 (Theo.)  | 10 |
| A – B of article (10) | 1-10 ofarticle (10) | Elements of limnology  | f. g. h, i, j | 2 (Theo.)  | 11 |
| A – B of article (10) | 1-10 ofarticle (10) | Elements of limnology  | f. g. h, I, j | 2 (Theo.)  | 12 |
| A – B of article (10) | 1-10 ofarticle (10) | Eutrophication  | f. g. h, i, j | 2 (Theo.)  | 13 |
| A – B of article (10) | 1-10 ofarticle (10) | Surface water quality in rivers and streams. | a, b, f. g. h, I, j | 2 (Theo.)  | 14 |
| A – B of article (10) | 1-10 ofarticle (10) | Surface water quality in rivers and streams. | a, b, f. g. h, I, j | 2 (Theo.)  | 15 |

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| 12. Infrastructure |
| Text Book:G M. Masters, 1991, Introduction to Environmental Engineering and Science, Prentice Hall, Englewood Cliffs, New Jersey.References1. Henry J.G and Heinke G.W, 2009, Environmental science and engineering”, 2nd edition, PHI Learning New Delhi.
 | 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, guestLectures , internship , field studies) |

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