**TEMPLATE FOR COURSE SPECIFICATION**

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| HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW |

**Course Instructor: Asst. prof. Dr. Mohanad J. M-Ridha**

**COURSE SPECIFICATION**

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| The course offers specialization in selected areas of Learning the basic principles of geographic information science, satellite imagery, production of environmental maps and geographic information base. Information about maps and satellite images, processing satellite and aerial images, learning Arc view program, making environmental maps |

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| University of Baghdad /College of Engineering | 1. Teaching Institution |
| Environmental Engineering Department | 2. University Department/Centre |
| GIS EnE | 3. Course title/code |
| Semester System: They attend in electronic mode 4 hrs. a Week. | 4. Modes of Attendance offered |
| Semester | 5. Semester/Year |
| 60 hrs./ 4 hrs per week | 6. Number of hours tuition (total) |
| 2018-2019 | 7. Date of production/revision of this specification |
| **8. Aims of the Course** | |
| The main objectives of the course are:  1. To understand GIS fundamentals,  2. To understand the principles, instrumentation and applications of GIS.  3. To perform analysis and calculations with ease. | |

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| **9· Learning Outcomes, Teaching ,Learning and Assessment Method**   1. **Cognitive goals.**   **At the end of the year the students should gain:**  A1. ArcMap and Arc Catalog  A2. Arc Catalog tools.  A3. Raster and vector graphics.  A4. Learning Remote sensing.  A5. Georeferenced, line, area, point  A6. Attract and welcome undergraduate students to our Bachelor of Science program in Environmental Engineering, and to graduate B.S. students who are innovative problem solvers, who become leaders in their organizations, and who possess the knowledge and skills required for a wide range of careers and career changes. |
| **B. The skills goals special to the course**  **B1.**  The principles, instrumentation and applications of GIS **.**  **B2.** Concentrating on scientific research and its leading role in helping to serve the society and solving its problems through conducting application researches  **Teaching and Learning Methods**  1- Lectures.  2- Homework and Assignments.  3- Tests and Exams.  4- In-Class Questions and Discussions.  5- Connection between Theory and Application.  6- In- and Out-Class oral conservations. |
| **Assessment Methods**  1. Examinations, Tests, and Quizzes.  2. Student Engagement during Lectures.  3. Responses Obtained from Students, Questionnaire about curriculum and faculty member (Instructor)***.***  4***.*** Home work related to problem solving. |
| C. Affective and value goals  C1.Applicable skills to learn geographic information science, satellite imagery, production of environmental maps and geographic information base.  C2. processing satellite and aerial images.  C3. Learning Arc view program, making environmental maps**.**  C4. Prepare students for successful careers in environmental engineering. |
| Teaching and Learning Methods  Intensive studies of regulations |
| Assessment methods |
| Case studies |
| D. General and rehabilitative transferred skills(other skills relevant to employability and personal development) |
| D1. Become more effective, independent and confident self-directed learners  D2. Improve their general skills for study and career management  D3. Articulate personal goals and evaluate progress towards their achievement  D4. An ability to identify, formulate, and solve engineering problems. |

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| **10. Course Structure** | | | | | |
| Assessment Method | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours | Week |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Review of fundamental concepts of GIS | 1&2 | 2 (Theo.) | 1 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | ArcMap and Arc Catalog  Application on GIS | 1 &2 | 2 (Theo.) | 2 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Satellite image  Application on GIS | 1 &2 | 2 (Theo.) | 3 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Arc Catalog tools  Application on GIS | 1 &2 | 2 (Theo.) | 4 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Raster and vector graphics  Application on GIS | 1 &2 | 2 (Theo.) | 5 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Georeferenced mapping  Application on GIS | 1,2,&3 | 2 (Theo.) | 6 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Create simple environmental project | 1,2,&3 | 2 (Theo.) | 7 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Create simple environmental project | 2,3 &4 | 2 (Theo.) | 8 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Georeferenced, line, area, point  Application on GIS | 2,3 &4 | 2 (Theo.) | 9 |
| ------------- | Electronic | Examination | -------- | 2 (Theo.) | 10 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Insert table and image in ArcMap  Application on GIS | 2,3 &4 | 2 (Theo.) | 11 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Database management  Application on GIS | 2,3 &4 | 2 (Theo.) | 12 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Exam | ------ | 2 (Theo.) | 13 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Review the subjects | 2,3 &4 | 2 (Theo.) | 14 |
| Questions during the lectures ,quiz, exam, present in the class | Electronic | Summary and questions | 2,3 &4 | 2 (Theo.) | 15 |

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| 11. Infrastructure | |
| 1. Rolf A.de by, et al., (2004)"principles of Geographic Information system", ITC Educational textbook series | 1. Books required reading: |
| 1. Bai Tian , (2016) GIS Technology Applications in Environmental and Earth Sciences 1st Edition | 1. Main references (sources) |
| 1. [Xuan Zhu](https://www.routledge.com/search?author=Xuan%20Zhu), (2016) GIS for Environmental Applications A practical approach | A- Recommended books and references (scientific journals, reports…). |
| <https://www.springer.com/gp/book/9783030213435>  <https://www.academia.edu/21312446/Application_of_GIS_in_Environmental_Engineering> | B-Electronic references, Internet  sites |

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| 12. The development of the curriculum plan  Not to relay on traditional examinations but the creation of reports following the reading of textbooks. These reports are validated and transformed into academic credits for graduation purposes. |