Republic of Iraq

Ministry of Higher Education & Scientific Research

Supervision and Scientific Evaluation Directorate

Quality Assurance and Academic Accreditation

International Accreditation Dept.

Academic Program Specification Form For The Academic Year 2017-2018

Universitiy: Baghdad

College : Engineering

Number Of Departments In The College : 12 Twelve

Date Of Form Completion : May – 1/9/2017

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Dean ’s Name

Date : 1/9/2017

Signature

Dean ’s Assistant For Scientific Affairs

Date : 1 / 9 / 2017

Signature

The College Quality Assurance And University Performance Manager

Date : 1 / 9 / 2017

Signature

Quality Assurance And University Performance Manager

Date : 1 / 9 / 2017

Signature

**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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| Engineering College | ***1. Teaching Institution*** |
| University of Baghdad/ Department of Surveying | ***2. University Department/Centre*** |
| Geodesy | ***3. Course title/code & Description*** |
| BSc in Surveying Eng. (4th Stage) | ***4. Programme(s) to which it Contributes*** |
| Annual | ***5. Modes of Attendance offered*** |
| 2017-2018 | ***6. Semester/Year*** |
| 120 | ***7. Number of hours tuition (total)*** |
|  | ***8. Date of production/revision of this specification*** |
| ***9. Aims of the Course*** | |
| The Geodesy course aims to introduce the actual shape and size of the earth to enable the survivors to determine the positions with high level of accuracy. The subjects of Geodesy deal with Earth as spheroid and this necessitates to introduce the most accurate methods of observations and accurate instruments which can be used effectively to fix the geodetic positions. | |

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| ***10·*** ***Learning Outcomes*** |
| The fourth year students should deliver a complete knowledge and practical experience of applying the algorithms of geodesy to introduce geodetic positions, geodetic networks, and the mathematical relationships between the geodetic positions. Furthermore, the students know how to find mathematical solutions for the first and second geodetic problems (forward and inverse computations). |
| ***11.*** ***Teaching and Learning Methods*** |
| Lectures, tutorials, and reports |
| ***12. Assessment Methods***  Exams (more than 1 exam for each semester+ several quizzes), technical reports. |
| ***13. Grading Policy***  Annual grades from exams, reports, and grade from the final exam |

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| ***14. Course Structure*** | | | |
|  |  |  | Week |
| Introduction and definitions |  |  | 1 |
| The sphere as a reference surface |  |  | 2 |
| Geographical coordinates system |  |  | 3 |
| Transformation between geographical coordinates systems |  |  | 4 |
| The definition of spheroid reference system |  |  | 5 |
| Relationship between eccentricity and flattening |  |  | 6 |
| Relationship between geodetic |  |  | 7 |
| geocentric and reduce latitude |  |  | 8 |
| Geodetic reference systems of coordinates |  |  | 9 |
| Radii of curvature of spheroid |  |  | 10 |
| Radius of prime vertical |  |  | 11 |
| Radius of oblique normal section |  |  | 12 |
| Area of part of spheroid and total area of spheroid |  |  | 13 |
| Length of loxodrom |  |  | 14 |
| First semester exam |  |  | 15 |
| Reciprocal normal section |  |  | 16 |
| The effect of height of signal due to azimuth |  |  | 17 |
| Reduction of measured quantities in triangulation networks |  |  | 18 |
| Transformation from normal length to geodesic |  |  | 19 |
| Differential equations for geodesic line Direct and inverse geodetic problems 1st principal problem (forward comp.) , Legendre solution (forward comp.) |  |  | 20 |
| Accurate solution using tables (forward comp.) |  |  | 21 |
| Approximate inverse computations |  |  | 22 |
| Accurate inverse computations |  |  | 23 |
| The effect of change of spheroidal parameters due adjusted angles |  |  | 24 |
| Adjustment of geodetic figure (central point figure) |  |  | 25 |
| Astrogeodetic orientation of spheroid |  |  | 26 |
| Physical geodesy and gravimetry , Specifications of equal potential surfaces |  |  | 27 |
| Laplace azimuth , Computing the separation between geoid and spheroid from astro geodetic deviation |  |  | 28 |
| Optometric heights , Dynamic heights |  |  | 29 |
| Second semester exam |  |  | 30 |

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| ***15. Infrastructure*** | | |
| G. BOMFORD, 1981, Geodesy  G. Mario A., 2004, Basic of Geomatics, online | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER | |
| NA | Special requirements (include for example workshops, periodicals, IT software, websites) | |
| NA | Community-based facilities  (include for example, guest  Lectures , internship , field studies) | |
| ***16. Admissions*** | | |
|  | | Pre-requisites |
| 15 | | Minimum number of students |
| 30 | | Maximum number of students |
| Dr. Oday Y. M Zeki | | ***17. Course Instructors*** |

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