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 2013-2014

Universitiy: Baghdad

College : Engineering

Number Of Departments In The College : 12 Twelve

Date Of Form Completion : April – 3 / 2014

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Dean ’s Name

Date : / 4 / 2014

Signature

Dean ’s Assistant For Scientific Affairs

Date : / / 2014

Signature

The College Quality Assurance And University Performance Manager

Date : / / 2014

Signature

Quality Assurance And University Performance Manager

Date : / / 2014

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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| Baghdad University | ***1. Teaching Institution*** |
| College of Engineering/Department of Electrical Engineering | ***2. University Department/Centre*** |
| Electrical circuits \ EE 207  | ***3. Course title/code & Description*** |
| Electrical Engineering | ***4. Programme(s) to which it Contributes*** |
| Internal | ***5. Modes of Attendance offered*** |
| Second Year Class | ***6. Semester/Year*** |
| 60 | ***7. Number of hours tuition (total)*** |
| 2015-2016 | ***8. Date of production/revision of this specification***  |
| ***9. Aims of the Course*** |
|  The aim of this course is to introduce students to the fundamental theory and mathematics for the analysis of poly phase system, frequency response, transfer function of circuits and the stability of the system. Through the material presented in this course, students will learn:1. The fundamental principles in electric circuit theory and to be able to extend these principles into a way of thinking for problem solving in mathematics, science, and engineering.2. Analyze circuits those include energy storage elements in the time and frequency domains. 3. How to work effectively both individually and in groups. 4. Evaluate the personal learning process and understanding of the concepts and skills from class.  |

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| ***10·*** ***Learning Outcomes***  |
| 1. An ability to read and comprehend electrical circuits at an appropriate level2. An ability both to follow and correctly to analyze the circuits of appropriate degrees of complexity.3. Understanding of electrical circuits’ equations, and an ability to use it correctly.4. An appreciation of the important connection between the ideas in the electrical circuits theories and the practical applications 5. Making an oral presentation6. Analyzing the circuits of appropriate degrees of complexity.7. Solve electrical circuits’ equations. |
|  ***11.*** ***Teaching and Learning Methods*** |
| Lecturing and Exercises  |
|  ***12. Assessment Methods*** Exams |
| ***13. Grading Policy*** Quizzes (10%) Mid-Year Exam (5%) Final Exam (35%) |

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| ***14. Course Structure*** |
|  |  |  |  |  | Week |
|  |  |  |  | Two Port Networks, Terminal Equations | 1 |
|  |  |  |  | Two Port Parameters | 2 |
|  |  |  |  | The Relationships between Parameters | 3 |
|  |  |  |  | A reciprocal and Symmetrical Two-Port | 4 |
|  |  |  |  | Cascade Interconnection | 5 |
|  |  |  |  | Series Interconnection, Parallel Interconnection | 6 |
|  |  |  |  | Series-Parallel Interconnection | 7 |
|  |  |  |  | Parallel-Series Interconnection | 8 |
|  |  |  |  | Operational Amplifier: Equivalent Circuit | 9 |
|  |  |  |  | Ideal Operational Amplifier | 10 |
|  |  |  |  | Applications of Operational Amplifier | 11 |
|  |  |  |  | Inverting Amplifier, Non Inverting Amplifier | 12 |
|  |  |  |  | Integrator and Differentiator Amplifier | 13 |
|  |  |  |  | Summing and Differential Amplifier  | 14 |
|  |  |  |  | Voltage Follower Amplifier and Relaxation Operational Amplifier | 15 |
|  |  |  |  | Cascaded Operational Amplifier Circuits | 16 |
|  |  |  |  | Laplace Transform in Circuit Analysis | 17 |
|  |  |  |  | Circuit Elements in the S-Domain | 18 |
|  |  |  |  | The Network Function and Laplace Transform | 19 |
|  |  |  |  | Bode Plot | 20 |
|  |  |  |  | K-Gain Factor | 21 |
|  |  |  |  | $(jw)^{\pm }$ Factor (Integral and Derivative Factor) | 22 |
|  |  |  |  | $(jw+1)^{\pm }$ Factor (First Order Factor) | 23 |
|  |  |  |  | Quadratic Factor | 24 |
|  |  |  |  | Frequency Response | 25 |
|  |  |  |  | Routh’s Criterion and Stability | 26 |
|  |  |  |  | Stable System | 27 |
|  |  |  |  | Unstable System | 28 |
|  |  |  |  | Determination the Number of Roots | 29 |
|  |  |  |  | Determination the Value of (K) that Make the System Stable or unstable  | 30 |

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| ***15. Infrastructure*** |
| **The text book:**- “Fundamentals of Electric circuits”, by Charles K. Alexander and Muthew N. O. Sadiku.**The references:**- “Electric circuits”, by James W. Nilsson.- “Introductory Circuit Analysis”, by Boylestad.- “Electrical Technology”, by Hughes.- “Engineering Circuit Analysis”, by William H. Hayt, Jr and Jack E. Kemmerly.In addition to internet links related to the topics discussed in the book and class. **Course materials:**Two Port Networks, Interconnected Two Port Network, Operational Amplifiers, Op Amp Circuit Analysis, Laplace Transform in Circuit Analysis, Application of Laplace Transform, Bode Plot and frequency response, Routh’s Criterion and Stability. | Required reading:· CORE TEXTS· COURSE MATERIALS· OTHER |
| Internet links related to the topics discussed in the book and class and websites | Special requirements (include for example workshops, periodicals, IT software, websites) |
| - | Community-based facilities(include for example, guestLectures , internship , field studies) |
| ***16. Admissions*** |
|  | Pre-requisites |
| 25 | Minimum number of students |
| 40 | Maximum number of students |
| Zainab Ibrahim Abbood Alrifaee | ***17. Course Instructors*** |

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