**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 |
| Electric Power System I / EE304 | 3. Course title/code |
| Electrical Engineering | 4. Programme(s) to which it contributes |
| Internal | 5. Modes of Attendance offered |
| Third Year Class | 6. Semester/Year |
| 90 | 7. Number of hours tuition (total) |
| 2010 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| The aim of this course is to introduce the basic theory of electric power system analysis and design. and enhance the students’ skills for the principles of distribution systems, overhead transmission lines and underground cables. Learn the efficiency and voltage regulation of power plants as well as determine the constants of transmission lines. | |
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| 10· Learning Outcomes, Teaching ,Learning and Assessment Method |
| 1. Knowledge and Understanding   A1. Learning the construction of electric power system components  A2. Understanding the principles of transmission and distribution.  A3. Understanding the analysis of the various types of transmission lines such as short, medium and long length transmission lines.  A4. Explaining the various losses in power system. |
| B. Subject-specific skills  B1. Analyzing the types of secondary transmission system  B2.presenting the performance of overhead and underground transmission system  B3. Illustrate the calculation of constants of power system  B4. Calculation of mechanical parameters of overhead transmission lines  B5. Studying the arresters and formation of corona |
| Teaching and Learning Methods |
| Lecturing and Exercises |
| Assessment methods |
| Exams, quizzes |
| C. Thinking Skills  C1. Getting a knowledge to analysis of electric power system  C2 ability to work in practical power system plant |
| Teaching and Learning Methods |
| Lecturing & Class discussions |
| Assessment methods |
| Exams , discussion |

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| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1. Design electric power system transmission  D2. Ability to learn calculation of insulators efficiency and corona effects |

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| 11. Course Structure | | | | | |
| Assessment Method | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours | Week |
| Exam | Lecturing, Discussions & Exercises | Introduction to power system analysis | A+B | 3 | 1 |
| Exam | Lecturing, Discussions & Exercises | Introduction to distribution system | A+B+C+D | 3 | 2 |
| Exam | Lecturing, Discussions & Exercises | Introduction to feeders and relating factors | A+B+C+D | 3 | 3 |
| Exam | Lecturing, Discussions & Exercises | Types of transmission system | A+B+C+D | 3 | 4 |
| Exam | Lecturing, Discussions & Exercises | Types of distribution system | A+B+C+D | 3 | 5 |
| Exam | Lecturing, Discussions & Exercises | Single phase Transmission line constants | A+B+C+D | 3 | 6 |
| Exam, quiz | Lecturing, Discussions & Exercises | Calculation of three phase transmission line constants | A+B+C+D | 3 | 7 |
| Exam | Lecturing, Discussions & Exercises | Efficiency and regulation of short length transmission line | A+B+C+D | 3 | 8 |
| Exam,quiz | Lecturing, Discussions & Exercises | Efficiency and regulation of long length transmission line | A+B+C+D | 3 | 9 |
| Exam | Lecturing, Discussions & Exercises | Efficiency and regulation of medium length transmission line | A+B+C+D | 3 | 10 |
| Exam | Lecturing, Discussions & Exercises | Power factor correction and maximum power st sending end and receiving end | A+B+C+D | 3 | 11 |
| Exam | Lecturing, Discussions & Exercises | Parallel operation of short length transmission lines | A+B+C+D | 3 | 12 |
| Exam | Lecturing, Discussions & Exercises | Parallel operation of medium transmission line | A+B+C+D | 3 | 13 |
| Exam | Lecturing, Discussions & Exercises | Phasor diagram of different types of load in short length transmission line | A+B+C+D | 3 | 14 |
| Exam,quiz | Lecturing, Discussions & Exercises | Phasor diagram of different types of load in medium length transmission line | A+B+C+D | 3 | 15 |
| Exam | Lecturing, Discussions & Exercises | Calculation of ABCD parameters of short length | A+B+C+D | 3 | 16 |
| Exam | Lecturing, Discussions & Exercises | Calculation of Y&Z parameters of short length | A+B+C+D | 3 | 17 |
| Exam | Lecturing, Discussions & Exercises | Calculation of ABCD parameters of medium length | A+B+C+D | 3 | 18 |
| Exam,quiz | Lecturing, Discussions & Exercises | Calculation of Y&Z parameters of medium length | A+B+C+D | 3 | 19 |
| Exam | Lecturing, Discussions & Exercises | Formation of corona | A+B+C+D | 3 | 20 |
| Exam | Lecturing, Discussions & Exercises | Disruptive and visual critical voltage | A+B+C+D | 3 | 21 |
| Exam,quiz | Lecturing, Discussions & Exercises | Corona power loss | A+B+C+D | 3 | 22 |
| Exam | Lecturing, Discussions & Exercises | Avoidance and effects of corona | A+B+C+D | 3 | 23 |
| Exam | Lecturing, Discussions & Exercises | Overhead line support | A+B+C+D | 3 | 24 |
| Exam | Lecturing, Discussions & Exercises | Overhead transmission line insulators | A+B+C+D | 3 | 25 |
| Exam, quiz | Lecturing, Discussions & Exercises | Voltage distribution on units of insulator strains | A+B+C+D | 3 | 26 |
| Exam, quiz | Lecturing, Discussions & Exercises | Improving the efficiency of insulator strains | A+B+C+D | 3 | 27 |
| Exam | Lecturing, Discussions & Exercises | Testing of insulators | A+B+C+D | 3 | 28 |
| Exam, quiz | Lecturing, Discussions & Exercises | Mechanical calculations of overhead transmission line | A+B+C+D | 3 | 29 |
| Exam | Lecturing, Discussions & Exercises | Underground cables | A+B+C+D | 3 | 30 |

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| 12. Infrastructure Required reading: | |
| Two text books : القدرة الكهربائية : تاليف د. عبد الصاحب حسن مجيد  Elements of power system analysis by Stevenson | · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| Internet websites, seminars | Special requirements (include for example workshops, periodicals, IT software, websites) |
| None | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | |
|  | Pre-requisites |
| 30 | Minimum number of students |
| 35 | Maximum number of students |