**Course description form**

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| 1. **Course Name**
 |
| ***Machines I (DC)*** |
| 1. **Course Code**
 |
| EP207 |
| 1. **Semester/Year**
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| 1s’t Semester/Second Year |
| 1. **The date this description was prepared**
 |
| 17 / 9 / 2023  |
| 1. **Available forms of attendance**
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| Face-to-Face theoretical lectures |
| 1. **Number of study hours (total) / number of units (total)**
 |
| 60/3 |
| 1. **Name of the course administrator**
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| Name: Lect. Mayyadah Sahib Ibrahim Email:mayyadah.sahib@uodiyala.edu.iq  |
| 1. **Course objectives**
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| Study the basic principles of DC machines.Qualifying students to be able to become familiar with the theoretical and scientific aspects of direct current machines Study the types of direct current machines, their types, working principles, properties and applications, and explain the importance of their uses in practical life.Urging students to benefit from the course in their field of work as engineers in the field of electrical power engineering in the future | **Objectives of the study subject** |
| 1. Solution of non-linear equations and root findings.
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| Weekly lectures included providing students with the basics and topics related to the pre-skills education outcomes to solve practical problems through presentation, lecture, or conducting experiments.Solve a group of practical and applied examples by faculty members.Through discussion, students participate in solving some practical problems.Practical laboratories in the department are monitored by faculty members in the department | **The Strategy**  |
| 1. Numerical integration and differentiation.
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| Interpolation and solving differential equations. | **Learning method** | **Required learning outcomes** | **Name of the unit or topic**  | **Hours** | **Week** |
| Daily, oral, monthly, written examinations and reports | Lectures NotesPDFpower pointVideo | Construction of D-C machines | The student learns an introduction to Construction of D-C machine | 6 | Week 1 to Week 2 |
| Daily, oral, monthly, written examinations and reports | Lectures NotesPDFpower pointVideo | E.m.f equation, electromagnetic torque, armature reaction, practical commutations problems and their minimization  | The student learns E.m.f equation, electromagnetic torque, armature reaction, practical commutations problems and their minimization | 10 | Week 3 to Week 5 |
| Daily, oral, monthly, written examinations and reports | Lectures NotesPDFpower pointVideo | Type of excitation of DC generators. Characteristics of D.C. Generators | The student learns Type of excitation of DC generators. Characteristics of D.C. Generators | 10 | Week 6 to Week 8 |
| Daily, oral, monthly, written examinations and reports | Lectures NotesPDFpower pointVideo | Loss in a D.C. Generator and efficiency Condition for Maximum Efficiency | The student learns Type of excitation of DC generators. Characteristics of D.C. Generators | 10 | Week 9to Week 10 |
| Daily, oral, monthly, written examinations and reports | Lectures NotesPDFpower pointVideo | Parallel Operation of Shunt GeneratorsConnecting Shunt Generators in Parallel | The student learns Parallel Operation of Shunt GeneratorsConnecting Shunt Generators in Parallel | 10 | Week 11to Week 14 |
| Daily, oral, monthly, written examinations and reports | Lectures NotesPDFpower pointVideo | Type of excitation of DC motors ,-Losses and Efficiency maximum power -condition for maximum *efficiency* | The student learns Type of excitation of DC motors ,-Losses and Efficiency maximum power  | 4 | Week 15 |
| 1. **Course Evaluation**
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| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc. |
| 1. **Learning and teaching resources**
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| Electrical Technology By B.L Theraja. | Required textbooks (methodology, if any) |
| 1.Principle of Electrical Machines Machines V.K. MEHTA2. Electrical Machines U.A. Bakshi V.U. klBakshi | Main references (sources) |
| All scientific journals that are relevant to the broad concept of DC machines | Recommended supporting books and references (scientific journals, reports....) |
| Peruse scientific websites for recent developments in the prescribed article | Electronic references, Internet sites |