

| Course Code | TKEE162204 | | | | | | | | | | | | | |
|---|--|--|------------------------|---------------------------|---|----------|---|-----|----------|----------|------------|----------|--|--|
| Course Name | <i>Fundamentals of Electrical Power System</i> | | | | | | | | | | | | | |
| Course Instructors | Harnoko, Tiyono, Avrin Nur Widiastuti | | | | | | | | | | | | | |
| Course Type | Required | | | | | | | | | | | | | |
| Course Classification | Engineering Topics | | | | | | | | | | | | | |
| Credit / Contact Hour per Week | 3 / 150 minutes per Week | | | | | | | | | | | | | |
| Course Description | <i>Students are have knowledge and understand the basic and physics laws in engineering field, also have analytical skills in engineering systems from physical perspective.</i> | | | | | | | | | | | | | |
| Prerequisites Courses | | | | | | | | | | | | | | |
| Covered Student Outcome | Fundamental and Engineering Knowledge (a) | | | | | | | | | | | | | |
| Learning Outcome | <ol style="list-style-type: none"> 1. Students are able to identify electrical power system and its actual problem generally. 2. Students are able to analyze a simple electrical power system with one resource and one load include Delta to Y conversion and vice versa, active and reactive load modeling, power factor using phasor analysis. 3. Students are able to explain the concept of electric generator and how it works. 4. Students are able to explain transmission and distribution system in electrical power system. 5. Students are able to understand power system protection and grounding systems. | | | | | | | | | | | | | |
| Topic | <ol style="list-style-type: none"> 1. Electrical Power System 2. Electrical Hazard 3. 1 Phase Power System 4. 3 Phase Power System 5. Primary Energy and Electrical Power Generation 6. Electrical Transmission System in Indonesia 7. Electrical Distribution System 8. Power Load 9. Selected Topics | | | | | | | | | | | | | |
| Direct Assessment | <table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Engineering Design Assignment – Creating Proof of Concept</td> <td>LO2, LO4</td> </tr> <tr> <td>Engineering Design Assignment – Presenting the solution</td> <td>LO3</td> </tr> <tr> <td>Mid Exam</td> <td>LO1, LO4</td> </tr> <tr> <td>Final Exam</td> <td>LO1, LO2</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> | | Direct Assessment Plan | Measured Learning Outcome | Engineering Design Assignment – Creating Proof of Concept | LO2, LO4 | Engineering Design Assignment – Presenting the solution | LO3 | Mid Exam | LO1, LO4 | Final Exam | LO1, LO2 | | |
| Direct Assessment Plan | Measured Learning Outcome | | | | | | | | | | | | | |
| Engineering Design Assignment – Creating Proof of Concept | LO2, LO4 | | | | | | | | | | | | | |
| Engineering Design Assignment – Presenting the solution | LO3 | | | | | | | | | | | | | |
| Mid Exam | LO1, LO4 | | | | | | | | | | | | | |
| Final Exam | LO1, LO2 | | | | | | | | | | | | | |
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| Indirect Assessment | Questionnaire (EDOM) | | | | | | | | | | | | | |
| References | <ol style="list-style-type: none"> [1] Theodore Wildi , 2002, Electrical Machines, Drives, and Power Systems [2] Cadick, J., Mary Capelli-Schellpfeffer, Dennis Neitzel, 2000, Electrical Safety Handbook, McGraw-Hill [3] http://172.20.2.1/Document/Books/Electronics/DC/DC_3.html, Electrical Safety [4] Weedy, B.M., 1979, Electric Power Systems, John Wiley & Sons | | | | | | | | | | | | | |