# PROGRAM PLAN AND SEMESTER LEARNING ACTIVITIES (RPKPS) SCHOOL YEAR 2021/2022

Geophysics

Geophysical Electronics

Practicum MFG-2109/ 1 credits

Mentoring Team:

Geophysical Electronics Practicum Supervisory

**GADJAH MADA UNIVERSITY**
**FACULTY OF MATHEMATICS AND NATURAL SCIENCES**
**2021**

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| | **Gadjah Mada University**<br>Faculty of Mathematics and Natural Sciences<br>Department of Physics / S1 Geophysics Study Program Academic Year 2021/2022 | | **Document Code:**<br>..... |

## SEMESTER LEARNING PROGRAM AND ACTIVITY PLAN (RPKPS)

| Course Code | Course Name | Weight (credit) | | Semester | Course Status | | Prerequisite Courses |
|---|---|---|---|---|---|---|---|
| MFG-2109 | *Geophysical Electronics Practicum* | *T: -* | *P: 1* | *Complete* | *Mandatory* | | *MFG-2106*)* |

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|---|---|---|
| **Course Brief Description** | Geophysical Electronics Practicum (MFG-2109) is a compulsory subject in the geophysics study program that teaches practicum using and utilizing electronic analaog and digital circuits for geophysical applications<br>This course aims to:<br>1. Students are able to design, assemble and use analog electronic circuits<br>2. Students are able to design, assemble and use digital electronics | |
| **Graduate Learning Outcomes (CPL) Charged to MK** | ***CPL-1*** | **Good Attitude**: Graduates are honest, disciplined, curious, critical, confident, independent, emotionally mature, cooperative, and trustworthy. Uphold norms, values, morals, religion, general ethics and professional ethics, and actively play a role in the global movement of sustainable development and behave professionally |
| | ***CPL-2*** | **Mastery of knowledge:** Graduates are able to apply basic science (mathematics, physics, chemistry, biology, geology), and geophysics in general and their relationship with other sciences such as geology, geodesy, geochemistry, geography, computing and information technology. |
| | ***CPL-3*** | **Operational and comprehensive skills**: Graduates are able to apply all geophysical methods (seismic, gravitational, magnetic, electrical, electromagnetic, and thermic methods) for energy exploration (e.g. oil and gas, coal, geothermal), mining materials (eg: iron, copper, gold, silver, tin) as well as groundwater and disaster mitigation. |
| **Course Learning Outcomes (CPMK)** | **After completing the learning of this course, students are expected to be able to:** | |
| | ***CPMK1*** | Discipline level and participant attendance [CPL 1] |
| | ***CPMK-2*** | Students are able to design, assemble and use analog electronic circuits [CPL-1, CPL-2, CPL-3] |
| | ***CPMK-3*** | Students are able to design, assemble and use digital electronics circuits [CPL-1, CPL-2, CPL-3] |

**CPL mapping with CPMK**

| | CPMK1 | CPMK2 | CPMK3 |
|---|---|---|---|
| CPL-1 | | | |
| CPL-2 | | | |
| CPL-3 | | | |

| The Relationship of CPMK with Learning Materials and Forms, as well as | | Learning Materials | Forms of Learning | Time Allocation |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **Time Allocation** | ***CPMK-2*** | The practice of displaying, loading, generating and displaying analog and digital signal data | Project based learning mixed | 2 Hours |
| | ***CPMK-2*** | Soldering Electronics Practicum | Project based learning | 2 hours |
| | ***CPMK-2*** | Creating a Simple DC Power Supply | Project based learning | 2 Hour |
| | ***CPMK-2*** | Measuring the price of Thevenin emf and Thevenin prisoner | Project based learning | 2 Hour |
| | **UTS/Project Task Results/Case Analysis** | | | |
| | ***CPMK-2*** | Observing the nature of RC passive filters | Project based learning | 2 Hour |
| | ***CPMK-2*** | *Recognize active systems* | Project based learning | 2 Hour |
| | ***CPMK-3*** | Digital circuit : analog to digital converter (ADC) | Project based learning | 2 Hour |
| | ***CPMK-3*** | Practice assembling Multiplexer, Encoder, Decoder,7 Segment | Project based learning | 2 Hour |
| | **UAS/ Project Task Results/ Case Analysis** | | | |
| **Learning Methods** | Student centered Learning | | | |
| **Student Learning Experience** | Class discussions, practical design and processing of data with computers | | | |
| **Access Learning Media / LMS and Offline &; Online Percentage** | CD, paper, pyton, Laptop, Zoom Meeting and Google meet | | | |

**Assessment Methods and Alignment with CPMK**

| Assessment Techniques | Assessment | Criteria/ Indicators | CPMK- 1 | CPMK-2 | CPMK-3 |
|---|---|---|---|---|---|
| **Participatory Activities*)** | **10** | **Liveliness** | √ | | |
| ***Project Results*/Case Study Results/PBL Results*)** | **40** | **Project results** | | √ | √ |
| **Cognitive** | | | | | |
| **Assignment** | **40** | **Task Grades** | | √ | √ |
| **Quiz** | **10** | **Liveliness** | | √ | √ |
| **UTS** | | | | | |
| **UAS** | | | | | |
| **Total** | **100** | | | | |

*) can also be obtained from UTS or UAS which is the result of participatory activities or *project* / case study results. In accordance with IKU 7, **the percentage of** participatory activities and project results/case studies/PBL results is at least 50%.

**Reference List**


1. Wang, M., 2010, Understandable Electric Circuits, The Institution of Engineering and Technology, London, United Kingdom
2. Sadiku, M.N.O., and Alexander, C.K., 2013, Fundamentals of Electric Circuits, 5th edition, The McGraw-Hill Companies, Inc.

<table>
<tr><td></td><td colspan="5">3. Maini, A.K, 2007, Digital Electronics:Principles, Devices and Applications, John Wiley &; Sons, Ltd.<br>4. Prakt Module. . Geophysical Electronics, 2020, Geophysics Study Program FMIPA UGM</td></tr>
<tr><td>Name of Lecturer (Team Teaching)</td><td colspan="5">Dr. Afif Rahman, MT and Dr. SUDARMAJI, MSi</td></tr>
<tr><td rowspan="2">Authorization</td><td>Drafting Date</td><td>Course Coordinator</td><td>Coordinator Field of Expertise (If Any)</td><td></td><td>Head of Study Program</td></tr>
<tr><td>September 7 2022</td><td>Dr. Afif Rahman, MT</td><td>Dr. rer.nat. Ade Anggraini, M.T.</td><td></td><td>  <br>Dr. Sudarmaji, MSi.</td></tr>
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