**Module Handbook**

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| **Module Name** | Engine Performance Analysis |
| **Module level** | Undergraduate / Bachelor |
| **Code (If Any)** | 35324222 |
| **Subtitles (If Any)** | - |
| **Courses included in the module (If Any)** | - |
| **Semester/ Year Levels** | 6/ 3rd year |
| **Name of Coordinator** | Dr. Warju, S.Pd., S.T., M.T. |
| **Lecturers** | Dr. Warju, S.Pd.,S.T., M.T.<br>Dr. Muhaji, S.T., M.T.<br>Diastian Vinaya Wijanarko, S.T., M.T. |
| **Language** | Indonesian |
| **Classification in the curriculum** | Compulsory course (scientific and skills course)<br>/~~elective course~~ |
| **Learning format / number of hours per week** | Per week consists of:<br>2 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study.<br>(1 hour of practicum = 2 x 50 minutes / hour)<br>(1 hour of structured assignments = 50 minutes / hour)<br>(1 hour of independent study = 60 minutes / hour) |
| **Learning Activities** | 2 hours of practicum, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester |
| **Number of Credits** | 2 |
| **Prerequisite Module** | Gasoline Engine Technology, Diesel Engine Technology, Motorcycles and Small Engine Practicum, Gasoline Engine Practicum, Diesel Engine Practicum |
| **Learning Objectives** | Program Learning Outcomes (PLO)<br>1. Able to apply applied research for innovation in vocational learning methods, optimization of production process technology and mechanical engineering services that are relevant to the needs of industrial development (PLO 3).<br>2. Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). |

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<tr><td></td><td>3. Able to apply technopreneurship, service advisor, supervisor of the mechanical engineering industry relevant to the development of the global industry (PLO 7).<br>Course Learning Outcomes (CLO)<br>1. Students are able to understand theoretically about the performance of vehicle engines, motor vehicles which include testing torque, effective power, specific fuel consumption, average effective pressure, thermal efficiency, exhaust of emissions, and noise levels.<br>2. Students are able to practice about the performance of vehicle engines, motor vehicles which include testing torque, effective power, specific fuel consumption, average effective pressure, thermal efficiency, exhaust of emissions, and noise levels.<br>3. Students are able to analyze about the performance of vehicle engines, motor vehicles which include testing torque, effective power, specific fuel consumption, average effective pressure, thermal efficiency, exhaust of emissions, and noise levels.</td></tr>
<tr><td>Module Content</td><td>A study on how to test motor vehicle engine performance which includes testing for torque, effective power, specific fuel consumption, average effective pressure, thermal efficiency, exhaust emissions and noise levels.</td></tr>
<tr><td>Soft skill attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).<br>The final grade (NA) is calculated according to the formula:<br>$NA = \frac{(2xP)+(3xT)+(2x\ midterm\ exam)+(3xfinal\ exam)}{10}$<br>Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
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|---|---|---|---|
| | C | 2.00 | 55 ≤ C < 60 |
| | D | 1.00 | ≤ D < 55 |
| | E | 0.00 | ≤ E < 40 |
| **Media** | Motorcycle engines, cars, engine trainers, and all its components | | |
| **References** | 1. Warju. 2009. *Pengujian Performa Mesin Kendaraan Bermotor.* Surabaya: Unesa University Press.<br>2. Warju. 2013. *Teknologi Reduksi Emisi Gas Buang Kendaraan Bermotor*. Surabaya: Unesa University Press.<br>3. Sutantra, I. N. 2010. *Teknologi Otomotif*. Surabaya: ITS-Press.<br>4. Obert, E. F. 1973. *Internal Combustion Engine and Air Pollution (3rd Edition)*. New York: Harper & Row, Publishers, Inc.<br>5. Heywood, J. B. 1988. *Internal Combustion Engine Fundamentals*. New York: McGraw-Hill, Inc.<br>6. Hesiler, H. 1995. *Advanced Engine Technology*. London: Edward Arnold. | | |
| **Date of last amandement made** | - | | |
| **Notes** | - | | |