| Module designation | EPM101 Calculus |
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| Semester(s) in which the module is taught | 1 |
| Person responsible for the module | Caesar O. Harahap<br>Muhammad Nanda Setiawan |
| Language | Indonesia |
| Relation to curriculum | Compulsory |
| Didactic methods | - Lecture |
| Workload (incl. contact hours, self-study hours) | Total workload: 136.08 hours<br>- 35.01 hours of synchronous lecture.<br>- 84.06 hours of self-study and assignments in the form of essays.<br>- 17.01 hours related to exam and self study |
| Credit points | 3 SKS (5.04 ECTS) |
| Required and recommended prerequisites for joining the module | - |

| Module objectives/intended learning outcomes | Course Learning Outcome | Related ELOs | |
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| | | ELO | Performance Indicator |
| | Students can solve pre-calculus math problems which include inequalities, absolute values, functions, parametric curve equations, and modeling of terms and trigonometry. | J | Understand algorithms and mathematical principles upon which the computer system is founded to solve engineering problems. |

| Content | This course provides basic concepts of limits and continuity; definitions, properties and derivative formulas and their applications; definitions and properties of transcendent functions and their applications; definitions, traits, indefinite integral and definite, derivatives and integrals of multivariable functions, application problems, and more.<br>Specifically, this course contains these topics:<br>1. Pre-calculus Math<br>2. Functions and Modelling |
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| | 3. Limits and Derivatives |
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| | 4. Derivatives Rules |
| | 5. Derivatives Application |
| | 6. Integral |
| | 7. Integration Technique |
| | 8. Integral Application |
| Examination forms | Written Test |
| Study and examination requirements | The total average score for the assignment (30%), midterm (30%), and final (40%) exams must be more than or equal to 55 (C). |
| Reading list | 1. James Stewart (2015), Calculus: Early transcendental, 8th Ed. Brooks Cole. |
| | 2. Dale Varberg, Edwin Purcell and Steve Rigdon (2006), Calculus, 9th Ed. Pearson |
| | 3. George B. Thomas, Maurice D. Weir, Joel Hass, Frank R. Giordano (2004), Thomas' Calculus, 11th Ed. Addison Wesley |
| | 4. Frank Ayres, Elliott Mendelson (2012), Schaum's Outline of Calculus, 6th Ed. McGraw-Hill Education |