Module designation	*Complex Analysis*
Semester(s) in which the module is taught	*5*
Person responsible for the module	*Kus Prihantoso Krisnawan, M.Si.*
Language	*Bahasa Indonesia*
Relation to curriculum	*Compulsory course*
Teaching methods	*150 minutes lectures and 180 minutes structured activities per week.*
Workload (incl. contact hours, self-study hours)	*Total workload is 136 hours per semester which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes self-study per week for 16 weeks.*
Credit points	*3*
Required and recommended prerequisites for joining the module	*MAT6312 Multivariable Calculus*
Module objectives/intended learning outcomes	*After taking this course the students have ability to:* *CO 1. Respecting other people's views, opinions, and original ideas* *CO 2. Understanding definitions, theorems, and some characteristics in mathematics using critical and systematic thinking in a manner individually or groups* *CO 3. Communicating, in writing or verbally, ideas to understand or solve mathematical problems.* *CO 4. Explaining the meaning or definition of terms and the intent of the theorems or properties in mathematics* *CO 5. Using related definitions and theorems to prove other properties or theorems.*
Content	*This course contains an introduction to complex numbers, complex variables functions, elementary functions, and integral of complex functions. Firstly, we introduce the complex number system, complex number operations (sums, products, moduli, exponential form, powers, arguments, and roots), and regions in the complex number. Secondly, we discuss the topics in functions of complex variable, such as; its' definition, mappings, limit, continuity, derivatives, Cauchy-Riemann equations, analytic functions, harmonic functions, and reflection principle. Finally, the discussion on elementary functions and its derivatives, this section contains the exponential function, the logarithmic function, trigonometric, hyperbolic, and inverse of trigonometric and hyperbolic functions. And, at the end of the course we discussed the integrals of complex functions on simply connected domains, multiply connected domains, and also the formula of integral named Cauchy integral.*

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<tr><td>Examination forms</td><td>1. Assessment is carried out to measure all learning outcomes, namely the outcomes of attitude learning (CO 1), general skills (CO 2 and 3), knowledge (CO 4), and special skills (CO 5).
2. Attitude assessment is carried out at each meeting using observation and / or self-assessment techniques by the assumption that every student is good. The student will be given a value as very good or not good if he/she shows, significantly, excellent or poor attitude. The results of attitude assessment used as one of the graduation requirements.</td></tr>
<tr><td>Study and examination requirements</td><td>The final grades will be weight as follow:
<table>
<tr><th>No</th><th>CO</th><th>Objek Penilaian</th><th>Teknik Penilaian</th><th>Bobot</th></tr>
<tr><td>1</td><td>CO 2 and 4</td><td>a. Presentation
b. Individual Assignment
c. Quiz</td><td>Observation
Written
Written</td><td>10%
10%
20%</td></tr>
<tr><td>2</td><td>CO 3 and 5</td><td>a. Group Assignment
b. Mid test
c. Final test</td><td>Written</td><td>10%
20%
30%</td></tr>
<tr><td colspan="3"></td><td>Total</td><td>100%</td></tr>
</table></td></tr>
<tr><td>Reading list</td><td>
1. Brown, J.W. and Churchill, R.V. 2004. Complex variables and Applications. Eighth edition. New York: The Mc Graw-Hill Companies, Inc.
2. Paliouras, D. 1987. Peubah Kompleks untuk Ilmuwan dan Insinyur (terjemahan Wibisono Gunawan). Jakarta: Erlangga.
3. Murray R. Spiegel. 1988. Complex Variables. Schaum’s Outline series. Mc Graw-Hill Company.
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