Module designation	*Introduction to Functional Analysis*
Semester(s) in which the module is taught	*5*
Person responsible for the module	*Kus Prihantoso Krisnawan S.Si., M.Si.*
Language	*Bahasa Indonesia*
Relation to curriculum	*Elective 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	*MAT6322*
Module objectives/intended learning outcomes	*CO1 Respect the views, opinions, or original findings of others.* *CO2 Think critically and systematically in understanding definitions, theorems, and properties in Metric, Norm (Banach), and Hilbert spaces independently and in groups.* *CO3 Communicate ideas or concepts in understanding or solving problems in metric, normed (Banach), and Hilbert spaces in writing and orally.* *CO4 State the definitions of metric, normed (Banach), and Hilbert spaces, provide examples that are consistent and inconsistent with the definitions, and indicate their consistency or inconsistency.* *CO5 Use definitions and theorems related to metric, normed (Banach), and Hilbert spaces to prove other properties or theorems.*
Content	*This course examines metric spaces, Cauchy sequences, completeness, normed spaces (Banach spaces), linear operators, functional operators, dual spaces, inner product spaces (Hilbert spaces), orthogonality, orthonormality, and function representations in Hilbert spaces.*
Examination forms	*CO1: Attitude assessment is carried out at each meeting by observation and / or self-assessment techniques using the assumption that basically every student has a good attitude.*

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<td>Study and examination requirements</td>
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The student is given a value of very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.

The final mark will be weight as follow:
<table>
<tr><th>No</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td>1</td><td>CO 1</td><td>a. Presentation
b. Discussion</td><td>Observation</td><td>5%
10%</td></tr>
<tr><td>2</td><td>CO 2, CO 3, CO 4</td><td>a. Individual assignment
b. Group assignment
c. Quiz
d. Midterm
e. Final test</td><td>Written</td><td>10%
10%
20%
20%
25%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
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<td>Reading list</td>
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1. Erwin Kreyszig. 1978. Introductory Functional Analysis with Applications. John Wiley & Sons, Inc

2. Martin Schechter. 2002. Principle of Functional Analysis. Second edition. American Mathematical Society

3. Jan Van Neerven. 2022. Functional Analysis. Cambridge University Press.

4. Marat V Markin. 2018. Elementary Functional Analysis. Walter de Gruyter GmbH, Berlin/Boston

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