Module Description
MPK 3208 Synthesis and Characterization of Inorganic Compounds

Module Name	**Synthesis and Characterization of Inorganic Compounds**
Module level, if applicable	Undergraduate Programme
Code, if applicable	MPK 3208
Subtitle, if applicable	-
Course, if applicable	-
Semester(s) in which the module is taught	5th Semester
Module coordinator(s):	Dr. Anis Shofiyani, M.Si
Lecturer	Dr. Anis Shofiyani, M.Si ; Dr. Anthoni B. Aritonang, M.Si ; Imelda H. Silalahi, Ph.D ; Dr. Nelly Wahyuni, M.Si
Language	Bahasa Indonesia
Relation to curriculum	*Compulsory* Courses for the undergraduate programme in Chemistry
Type of teaching, contact hours	Decide teaching/training components for each course outcome ● Theory /Face-to-face lecture (for understanding): 10 lecture meetings ● Practical (to develop skill): - ● Seminar (for communication skills): 2 ● Assignments: 2 ● Examinations: 2 ● Project (small, group, etc): -
Workload	*(Estimated) Total workload: 2 x 2.83 hours = 5.66 hours per week.* *Contact hours (lecture): 2 x 0.83 hours = 1.66 hours per week* *Individual activity, including examination preparation, specified in hours: 2 x 1 hour = 2 hours per week* *Structured activity: 2 x 1 hour = 2 hours per week* *Mid and final-test: 2 x (2 x 0.83) hours = 3.32 hours* *14 weeks per semester plus 2 times examination (mid and final*

	test) *82.56 total hours per semester*
Credit points	2 (3.34 ECTS)
Requirements according to the examination regulations	Registered in this course Minimum 75% attendance in this course
Learning goals/competencies:	**Intended Learning Outcomes (ILO)** After taking this course, students will be able to: 1. LO-1 2. LO-3
Module objectives	After taking this course, students will be able to: 1. To explain the methods and basic principles of synthesis and characterization of inorganic compounds. 2. To choose and apply appropriate methods in the synthesis of inorganic compounds 3. To analyze the physicochemical characteristics of synthesized inorganic compounds using suitable methods, including diffraction, spectroscopy, microscopy, and thermal analysis.
Content:	1. Definitions and frequently used terms in inorganic synthesis 2. Inorganic compound synthesis methods (solid-vapor: PVD, CVD; solid-solid: alloys, ceramics, microwave; sol-gel, hydrothermal, solvothermal, sonochemical, precipitation/coprecipitation, emulsion, electrochemical) 3. Synthesis of complex compounds and their characterization 4. Characterization methods of inorganic compounds (spectroscopy FTIR dan DR-UV, XRD, XRF, solid-NMR, XRF, SEM-TEM, thermal analysis)
Attribute Soft skill:	Critical thinking, Discipline, teamwork skills, responsibility, logical thinking, and academic communication skills (presentation)
Recommended prerequisites	-
Study and examination requirements and forms of examination	Students are considered competent and pass if they at least get 50% of the maximum final grade. The final grade (NA) is calculated based on the following :

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<tr><th>Assessment Components</th><th>Percentage Contribution</th></tr>
<tr><td>Participation and activeness in class</td><td>10%</td></tr>
<tr><td>Assignment</td><td>20% - 30%</td></tr>
<tr><td>Mid-semester test</td><td>35 %</td></tr>
<tr><td>Final semester test</td><td>35%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
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Assessment format: essay test, assignments, review of articles, and presentation
Assessment criteria: activity, assignments, presentation, and examination scores</td></tr>
<tr><td>Learning Methods</td><td>Small group discussion
Case-based learning</td></tr>
<tr><td>Media employed</td><td>white board; power point presentation; and e-learning system (edlink)</td></tr>
<tr><td>Reading list</td><td>1. Atkins, P. et al., 2010, Inorganic Chemistry, 5th edition, Freeman and Company, New York.
2. Ningsih, S.K.W., 2016, Sintesis Anorganik, UNP Press, Padang
3. Setiabudi, S. Hardia, R. Mudzakir, A., 2012, Karakterisasi Material: Prinsip dan Aplikasinya dalam Penelitian Kimia, UPI Press, Bandung
4. Prasetyoko D., 2016, Karakterisasi Struktur Padatan, Deepublish, Yogyakarta</td></tr>
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