MODULE HANDBOOK

Module Name :	Solid State Chemistry
Module level :	Bachelor
Course Code :	3074112073
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term	6th / Third Year
Module coordinator(s)	Samik, S.Si., M.Si.
Lecturer(s):	Prof. Dr. Harun Nasrudin, M.S. Samik, S.Si., M.Si. Nur Hayati, S.Si., M.Si.
Language:	Indonesian
Classification within the curriculum:	~~Compulasory~~ / Elective
Teaching format/class hours per week during the semester:	2 contact hours of lectures (Indonesia credit semester or sks*)
Workload :	Lecture: 2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester. 79.33 total hours per semester ~ 3.18 ECTS**
Credit Point:	2 sks (3.18 ECTS)

<table>
<tr><td>Requirements:</td><td>Thermodynamics of chemistry</td></tr>
<tr><td>Learning goals/competencies:</td><td>1. Able to apply logical, critical, systematic and innovative thinking in the context of developing or implementing science and technology related to solid-state chemistry.
2. Able to produce appropriate conclusions based on the results of identification, analysis, and synthesis of chemicals that have been carried out.
3. Mastering theoretical concepts about crystal structure, types of crystals, solids analysis techniques, properties of solids, crystal defects, synthesis, and utilization of solid materials.
4. Have a responsible attitude by applying preparative methods and characteristics of inorganic solids, properties and structures of solids, and solid solutions.</td></tr>
<tr><td>Content</td><td>A study of solids, crystal structures, types of crystals, solids analysis techniques, properties of solids, crystal defects, synthesis, and utilization of solid materials. This study was conducted through lectures, discussions, review of journal articles and presentations.</td></tr>
<tr><td>Attribute Soft skill:</td><td>Active communication; Disipline; Collaboration; Responsibility; and Argumentation in class and outdoor setting</td></tr>
<tr><td>Study/exam achievements:</td><td>The final grade (NA) is calculated based on the following ratio:
<table>
<tr><td>Assessment Components</td><td>Percentage of contribution</td></tr>
<tr><td>Participation</td><td>20%</td></tr>
<tr><td>Assignment</td><td>30%</td></tr>
<tr><td>Mid-semester test</td><td>20%</td></tr>
<tr><td>Final semester test</td><td>30%</td></tr>
</table>
Grade Conversion of 0-100 scale into 0-4 scale is set as below:
<table>
<tr><td>Letter</td><td>Number</td><td>Grade interval</td></tr>
<tr><td>A</td><td>4.00</td><td>$85 \leq A \leq 100$</td></tr>
<tr><td>A-</td><td>3.75</td><td>$80 \leq A- < 85$</td></tr>
<tr><td>B+</td><td>3.50</td><td>$75 \leq B+ < 80$</td></tr>
<tr><td>B</td><td>3.00</td><td>$70 \leq B < 75$</td></tr>
<tr><td>B-</td><td>2.75</td><td>$65 \leq B- < 70$</td></tr>
<tr><td>C+</td><td>2.50</td><td>$60 \leq C+ < 65$</td></tr>
<tr><td>C</td><td>2.00</td><td>$55 \leq C < 60$</td></tr>
<tr><td>D</td><td>1.00</td><td>$40 \leq D < 55$</td></tr>
<tr><td>E</td><td>0.00</td><td>$0 \leq E < 40$</td></tr>
</table></td></tr>
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Learning Methods :	Lecture using: Student-centered approach; individuals' assignment, group assignment, discussion, and presentation (structured activities)
Form of Media:	Computer, LCD, White board, internet
Literature (primary references):	Moore, EA and Smart, LE. 2020. Solid State Chemistry An Introduction. New York: CRC Press. Samik, Nasrudin, H., & Setiarso, P. (2018). *Kimia Zat Padat*. Surabaya: UNESA University Press Askeland, D.R., & Fulay, P.P. (2009). *Essentials of Materials Science and Engineering*. Second Edition. Canada: Cengage Learning Bahl, A., Bahl, B.S., & Tuli, G.D. (2002). *Essential of Physical Chemistry*. New Delhi: S.Chand and Company Ltd. Levine, Ira. (2009). *Physical Chemistry*. Sixth Edition. New York: McGraw-Hill Ropp, R.C., & Warren. (2003). *Solid-state Chemistry*. Amsterdam: Elsevier Science Rodgers, G.E. (2012*). Descriptive Inorganic, Coordination, and Solid-State Chemistry.* Third Edition. Canada: Brooks/Cole, Cengage Learning Smart, L.E., & Moore, E.A. (2005). *Solid-state Chemistry An Introduction*. Third Edition. Boca Raton London: Taylor & Francis Group. West, A.R. (1984). *Solid-state Chemistry and Its Applications*. New Delhi: John Wiley & Sons Ltd.
Notes:	*1 sks in learning process = three periods consist of: (a) scheduled instruction in a classroom (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018. For lab activity: 1 sks in learning process = two periods consist of: (a) scheduled lab activity (100 minutes); (b) structured lab activity (70 minutes);
	**1 sks = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019