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| **Undergraduate Programme in Chemistry**  Telp : +62274 519739  Email : [kimia@uin-suka.ac.id](mailto:kimia@uin-suka.ac.id)  Website : <http://kimia.uin-suka.ac.id/> | **MODULE HANDBOOK** |

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| Module Name | Structure & Bonding in Chemistry |
| Module level, if applicable | Bachelor |
| Code, if applicable | KIM414009 |
| Subtitle, if applicable | - |
| Courses, if applicable | Structure & Bonding in Chemistry (Struktur dan Ikatan Kimia) |
| Semester(s) in which the module is taught | 2nd  (second) |
| Person responsible for the module | Prof. Dr. Maya Rahmayanti, M.Si. |
| Lecturer(s) | Priyagung Dhemi Widiakongko, M.Sc |
| Language | Indonesia |
| Relation to curriculum | Mandatory course in the first year (2nd semester) Bachelor Degree |
| Type of teaching, contact hours | 100 minutes lectures and 120 minutes structured activities per week. |
| Workload | Total workload is 90,6 hours per semester, which consists of 100 minutes lectures per week for 14 weeks, 120 minutes structured activities per week, 120 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam |
| Credit points | 2 |
| Requirements according to the examination regulations | Student should fulfil 75% of lectures attendance |
| Recommended prerequisites | No prerequisites stated on |
| Module objectives/intended learning outcomes | After completing this course, the students are:   |  |  | | --- | --- | | CO 1. | Able to analyze electronic structure of atom and molecules based on Classical Mechanics and Quantum Mechanics | | CO 2. | Able to analyze chemical bonding based on Classical Mechanics and Quantum Mechanics | | CO 3. | Able to analyze structure & bond differences among solid, gas, and liquid phase of matter. | |
| Content | a. Electronic structure of Atom based on Classical Mechanics and Quantum Mechanics  b. Chemical bonding based on Quantum Mechanics  c. Molecular Orbital Theory for Atoms and Molecules  d. Intermolecular bonding  e. Structure of Solid, Gas, Liquid  f. Brief explanation of Biomolecules Structure |
| Study and examination requirements and forms of examination | The final mark will be weighted as follows:   |  |  |  | | --- | --- | --- | | **NO** | **Assessment methods (components, activities)** | **Weight (percentage)** | | 1 | Final Examination | 40% | | 2 | Mid-Term Examination | 30% | | 3 | Class Activities : Quiz, Homework, etc. | 30% |   The final assessment is expressed in the form of a letter value converted from a number value with the following categories:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **NO** | **Number Value** | **Letter Value** | **NO** | **Number Value** | **Letter Value** | | 1 | ≥ 95 | A | 7 | 65-69.99 | B/C | | 2 | 90-94.99 | A- | 8 | 60-64.99 | C+ | | 3 | 85-89.99 | A/B | 9 | 55-59.99 | C | | 4 | 80-84.99 | B+ | 10 | 50-54.99 | C- | | 5 | 75-79.99 | B | 11 | 55-34.99 | D | | 6 | 70-74.99 | B- | 12 | <35 | E | |
| Media employed | White-board, Lcd Projector, e-learning (<https://daring.uin-suka.ac.id/>) |
| Reading list | 1. Brady, J.E. 2005. Kimia Universitas Asas & Struktur. Jakarta: Binarupa Aksara  2. Chang, R. 1986. General Chemistry: The Essential Concepts. New York: McGraw-Hill College  3. Fleming, I. 1997. Orbital Frontier dan Reaksi Kimia Organik. Yogyakarta: Gadjah Mada University Press  4. Yahya, U. 2001. Ikatan Kimia (Buku Ajar). Yogyakarta: Jurusan Kimia FMIPA UGM  5. Cotton, F.A., Wilkinson, G., Gaus, P.G.1995. Basic Inorganic Chemistry (e-book). New York: John Wiley & Sons |

**PLO and CO Mapping**

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|  | **PLO 1** | **PLO 2** | **PLO 3** | **PLO 4** | **PLO 5** | **PLO 6** | **PLO 7** | **PLO 8** | **PLO 9** |
| **CO 1** |  |  | **√** | **√** |  |  |  |  |  |
| **CO 2** |  |  | **√** | **√** |  |  |  |  |  |
| **CO 3** |  |  | **√** | **√** |  |  |  |  |  |