Module Handbook

<table>
<tr><td>Module Name</td><td colspan="5">Physical Chemistry</td></tr>
<tr><td>Module Level</td><td colspan="5">Higher Diploma</td></tr>
<tr><td>Code, if applicable</td><td colspan="5">VKD320</td></tr>
<tr><td>Subtitle, if applicable</td><td colspan="5">-</td></tr>
<tr><td>Courses, if applicable</td><td colspan="5">-</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td colspan="5">3rd semester</td></tr>
<tr><td>Person responsible for the module</td><td colspan="5">Yuli Rohyami, S.Si., M.Sc.
Tri Esti Purbaningtias, S.Si., M.Si.
Ganjar Fadhillah, S.Si., M.Si.</td></tr>
<tr><td>Lecturer</td><td colspan="5">Yuli Rohyami, S.Si., M.Sc.
Tri Esti Purbaningtias, S.Si., M.Si.
Ganjar Fadhillah, S.Si., M.Si.</td></tr>
<tr><td>Language</td><td colspan="5">Bahasa Indonesia</td></tr>
<tr><td>Relation to curriculum</td><td colspan="5">Compulsory</td></tr>
<tr><td>Type of teaching, contact hours</td><td colspan="5">Flipped classroom-cooperative learning: (1) independent study: flipped classroom: google classroom; (2) face to face: cooperative learning; (3) structure activities: cooperative learning; (4) exam: 6.47 hours x 16 weeks per semester</td></tr>
<tr><td rowspan="3">Workload</td><td colspan="2">Total Workload</td><td colspan="3">91 hours; 2 CU</td></tr>
<tr><td></td><td>Independent study: flipped classroom</td><td>Face to face: cooperative learning</td><td>Structure activities: cooperative learning</td><td>Exam</td></tr>
<tr><td>Hours</td><td>24</td><td>28</td><td>28</td><td>11</td></tr>
<tr><td>Credit Points</td><td colspan="5">2 CU/3.37 ECTS</td></tr>
<tr><td>Requirements according to the examination regulations</td><td colspan="5">75% minimum requirements of attendance</td></tr>
<tr><td>Recommended prerequisites</td><td colspan="5">General Chemistry</td></tr>
<tr><td>Module objectives/intended learning outcomes</td><td colspan="5">PLO 3: Able to express basic concepts of chemistry, chemical analysis, operation and maintenance of chemical instruments that can be applied in their work
Subject LO:
1. Students are able to determine volume and pressure of gas
2. Student are able to determine physicochemical properties
3. Student are able to apply thermodynamic law
4. Student are able to determine partial molar volume of mixtures and physicochemical properties analysis
5. Student are able to determine the spontaneous reaction
6. Student are able to apply the reaction rate equation and determine the order of reaction
7. Student are able to determine the surface area of solid and explain interaction the substance on the solid state</td></tr>
<tr><td>Content</td><td colspan="5">1. Gas
2. Liquid
3. Thermodynamic Low</td></tr>
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<tr><td></td><td colspan="3">4. Chemical kinetics
5. Solid</td></tr>
<tr><td rowspan="8">Study and examination requirements and forms of examination</td><td>Subject LO</td><td>Examination requirements and forms of examination</td><td>Percent</td></tr>
<tr><td>1</td><td>Quizzes, collaborative assignment, midterm exam</td><td>10</td></tr>
<tr><td>2</td><td>Quizzes, collaborative assignment, midterm exam</td><td>15</td></tr>
<tr><td>3</td><td>Quizzes, collaborative assignment, midterm exam</td><td>20</td></tr>
<tr><td>4</td><td>Quizzes, collaborative assignment, final exam</td><td>15</td></tr>
<tr><td>5</td><td>Quizzes, collaborative assignment, final exam</td><td>10</td></tr>
<tr><td>6</td><td>Quizzes, collaborative assignment, final exam</td><td>20</td></tr>
<tr><td>7</td><td>Quizzes, collaborative assignment, final exam</td><td>10</td></tr>
<tr><td>Media employed</td><td colspan="3">Google classroom, youtube, zoom meeting, google form, google doc</td></tr>
<tr><td>Reading list</td><td colspan="3">1. Addison NJH, 1989, Physical Chemistry, 3rd ed, Harper Collin Florida
2. Atkin PW, 1999, Physical Chemistry Volume 1, Translated by Dra. Irma I. Kartohadiprojo, Erlangga, Jakarta
3. Atkin PW, 1999, Physical Chemistry Volume 2, Translated by Dra. Irma I. Kartohadiprojo, Erlangga, Jakarta
4. Castelan, GW, 1983, Physical Chemistry, 3rd ed Addission Wesley Publishing Company, Massachuset
5. Dogra, S.K., Dogra, K., 1990, Physical Chemistry and Questions, UI Press Jakarta
6. Rohyami, Y., 2014, Physical Chemistry, Deepublish, Yogyakarta</td></tr>
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