| | UNIVERSITAS PADJADJARAN<br>FACULTY OF MATHEMATICS AND NATURAL SCIENCES<br><br>MASTER PROGRAM IN CHEMISTRY | COURSE CODE:<br>D20B.302 |
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| Module designation | Energetics Material |
| Semester(s) in which the module is taught | 2 |
| Lecturers | Juliandri, Ph.D.<br>Dr. rer. nat Yudha Prawira Budiman. |
| Medium of instruction | English and Indonesian |
| Relation to curriculum | Mandatory elective courses Functional Material<br>Master of Science in Chemistry |
| Teaching methods | Lecture and discussion |
| Workload | Total workload : 53.42 hours<br><br>**CLASS**<br><br>Lecture and Discussion : 16.69 hours<br><br>Tutorial : 3.35 hours<br><br>Assignment : 2.00 hours<br><br>Test and Examination : 6.68 hours<br><br>Independent Study : 26.70 hours |
| Credit points | 2 (2-0)<br>2 Credits = 3.62 ECTS |

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| Required and recommended prerequisites for joining the module | - |

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| Module objectives/intended learning outcomes | 1. Students are able to master the theoretical concepts of material energetics. [C2]<br>2. Student is able to produce the right conclusions regarding the latest topics of material energetics, both personally and in group work, as well as present them. [C3]<br>3. Students are able to calculate the dimensions of crystal density, heat of formation and sublimation, enthalpy, entropy and electric spark from energetic material compounds using a semi-empirical approach. [C3] |

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| Contents | Material energetics is a lecture related to materials used to produce or store energy. It also discusses how compounds can produce large amounts of energy and predicts some of the properties of explosive compounds semi-empirically. |

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| Examination forms | Test, Presentation, and Assignment |
| Study and examination requirements | Minimum attendance at lectures is 80%. Final score is evaluated based on quiz (10%), individual assignment (20%), mid semester exam (35%), and end semester exam (35%). |
| Reading lists | 1. Mohammad H. Keshavarz, Thomas M. Klapötke (2018) The Properties of Energetic Materials. De Gruiter.<br>2. Gurdip Singh, (2015) Recent Advances on Energetic Materials. NovaScience Publishers. |