Module Descriptions

Module designation	*8420303076- Modern Physics*
Semester(s) in which the module is taught	*4*
Person responsible for the module	1. *Dra. Suliyanah, M.Si* 2. *Dr. Asnawi, M.Si* 3. *Lydia Rohmawati, M.Si* 4. *Utama Alan Deta, M.Pd., M.Si* 5. *Prof. Dr. Wasis, M.Si* 6. *Abu Zainuddin, M.Pd*
Language	*indonesia/ English*
Relation to curriculum	*Compulsory*
Teaching methods	*Lecture, lesson, Discussion, case study*
Workload (incl. contact hours, self-study hours)	*Total workload: 136 work hours per-semester* *Contact hours:* ● *Lecture, exercise: 26.7 work hours per-semester ,* ● *Laboratory session: 45.3 work hours per-semester* ● *Private study including examination preparation: 64 work hours per-semester*
Credit points	*4.77 ECTS*
Required and recommended prerequisites for joining the module	● *Calculus for Physics* ● *Series and Linear Algebra for Physics* ● *Basic Mechanics and Thermodynamics* ● *Basic Electromagnetism and Optics*
Module objectives/intended learning outcomes	● *Attitude: -* ● *Competences:* *Develops logical, critical, systematic and creative thinking in carrying out specific work in the field of expertise and in accordance with the work competency standards in the relevant field.* ● *Knowledge:* 1) *Masters and demonstrates the principles of classical and modern physics theory.* 2) *Formulates physical symptoms and problems based on the results of observations and experiments, and model them using mathematics and computing for appropriate decision making in both familiar and new problems.* ● *Skills: -*

Content	*The Modern Physics course discusses the concepts/ principles/theories / basic laws of Modern Physics (physics content knowledge) which underlies the study material in the Physics curriculum of SMA / SMK in depth which includes Relativity, Particle Properties of Waves, Wave Properties of Particles, Structure Atom, Quantum Mechanics, Hydrogen Atom Quantum Theory, Multiple Electron Atom, Core Structure, Nuclear Transformation, as well as being able to communicate scientifically and work effectively both individually and in groups.*
Examination forms	*Essay*
Study and examination requirements	***Requirements for successfully passing the module:*** *1) Minimum attendance of 75%* *2) Minimum score of 55 out of 100*
Reading list	*1) Beiser A, 2003, "Consepts of Modern Physics", Sixth Edition. McGraw Hill Inter. BookCompany* *2) Supangkat, Haryadi, 1990. "Fisika Modern", Jurusan Fisika ITB.* *3) Wehr,M R.1980," Physics of The Atom" , Addison Wesley Manila*