MODULE HANDBOOK

Course:	**Solid State Physics**
Module Level:	Undergraduate
Code:	FIM 301
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	6^{th} / Third Year
Module Coordinator	Dyah Hikmawati, SSi.,M.Si.
Lecturer(s):	Dyah Hikmawati, SSi.,M.Si. and Drs. Adri Supardi, M.Si
Language:	Bahasa Indonesia
Classification within the Curriculum:	Compulsory Course / ~~Elective Course~~
Teaching format / class hours per week during semester:	3 hours of lectures (50 min / hour)
Workload:	3 hours of lectures, 3 hours of structural activities, 3 hours of individual study, 13 weeks per semester, and total of 117 hours per semester ~ 3.9 ECTS*
Credit Points:	3
Requirement(s):	(FIT 301) Quantum Physics
Learning Goals/Competencies:	**General Competence (Knowledge):** After following this course, students will able to analyze the crystal structure and physic properties of materials. **Specific Competence:** 1. Describe the different types of bonding in solids. 2. Explain the concepts of unit cell, basis lattice and crystal structure. 3. Discuss experimental methods to determine crystal structure and perform crystal structure calculations. 4. Describe and explain the Drude and Free Electron Models of conduction in solids. 5. Describe the basic thermal, electrical, optical, magnetic and superconducting properties of solids. 6. Apply physical principles to solve numerical problems based on the physical properties of solids.
Contents:	To introduce the student to the structure of crystalline solids and diffraction techniques for structure determination. To provide an understanding of bonding in solids. To introduce the student to the concept of band structure. To provide a basic grounding in thermal, electrical optical and magnetic properties of solids
Soft Skill Attribute:	Effort and ethic
Study/Exam Achievements:	Students are considered competent and eligible to pass the course upon obtaining at least 40 of maximum score for the exams (midterm test and final exam), structured activity(group discussion). Final score is calculated as follow: 20% assignment + 20% Quiz + 30% midterm test + 30% final exam Final grade is defined as follow: A : 75 - 100

	AB : 70 - 74.99 B : 65 - 69.99 BC : 60 - 64.99 C : 55 - 59.99 D : 40 - 54.99 E : 0 - 39.99
Forms of Media:	Powerpoint slides, LCD projectors and whiteboards
Learning Methods:	Lecture, assessments and group discussion
Literature(s):	1. Aminatun, Djoni I.Z. 2002. *Bahan Ajar Fisika Zat Padat*, Program Semi Que - IV Tahun I Jurusan Fisika. FMIPA, Universitas Airlangga. 2. Cyrot, M. and Pavuna, D. 1992. *Introduction to Superconductivity and High - Tc Materials*. Word Scientific Co, Singapore. 3. Kittel, C. 1986. *Introduction to Solid State Physics* 6th ed. John Wiley & Sons, New York. 4. Omar, M.A. 1975. *Elementary Solid State Physics*. Addison – Wesley, Massachussets. 5. Reka Rio & Lida, M. 1982. *Fisika dan Teknologi Semikonduktor*. PT. Pradaya Paramita, Jakarta.
Notes:	*Total ECTS = {(total hours workload × 50 min) / 25 hours Each ECTS is equals with 25 hours.