MODULE HANDBOOK

Course:	**Nuclear Physics**
Module Level:	Undergraduate
Code:	FIN401
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	6^{th}/ Third Year
Module Coordinator:	Febdian Rusydi, Ph.D.
Lecturer(s):	Prof. Suhariningsih, Adri Supadri, M.S., Dr. Andi H. Zaidan and Febdian Rusydi Ph.D
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):	(FIT301) Quantum Physics and (FIT303) Electricity and Magnetism
Learning Goals/Competencies:	**General Competence (Knowledge) :** Students are able to determine the properties of hydrogen atom using the Schroedinger equation and apply hydrogen atom to understand the electronic structure of many-electron atoms and solid. **Specific Competence:** 1. Students are able to apply wavefunction interpretation in quantum theory and use Schroedinger equation for simple case. 2. Students are able to apply Schroedinger equation to hydrogen atom. 3. Students understand application of hydrogen atom model with spin concept.
Contents:	We begin with the discussion of wavefunction interpretation in quantum theory, then proceed to getting familiar with Schroedinger equation for simple case and finally applying Schroedinger equation to hydrogen atom. In the end part of the lecture, we introduce the identical particle system treatment with quantum physics where spin concept plays important role. We discuss two application of hydrogen atom model with spin concept: many-electron atoms and solid.
Soft Skill Attribute:	Effort and ethic.

Study / Exam Achievements:	Passing grade is D (equivalent of score 40.0 of 100.0). The score is determined by 10 quizzes which are distributed in the semester. Maximum score for each quiz is 10. The quiz will take 15 – 20 minutes. There will be 10 homework sets in the semester. Each homework set contains 10 problems. The homework is not to be submitted, but one of the problems will be asked in the quiz. Score to grade conversion: 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 :	Whiteboard and projector
Learning Method :	Lecturing, homework, tutorial
Literature(s) :	1. Kenneth S. Krane: *Introductory Nuclear Physics*, John Wiley & Sons, 1987 2. David J. Griffiths: *Introduction to Quantum Mechanics*, 2nd edition, Prentice Hall, 2004 3. David J. Griffiths*: Introduction Elementary Particles*, 2nd edition, John Wiley & Sons, 2008
Notes :	*Total ECTS = {(total hours workload × 50 min) / 25 hours Each ECTS is equals with 25 hours.