Course:	**Many-body Quantum Mechanics**
Module Level:	Undergraduate
Code:	FIT311
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	5th / Third Year
Module Coordinator:	Febdian Rusydi, Ph.D
Lecturer(s):	Febdian Rusydi, Ph.D and Andi Hamim Zaidan,Ph.D
Language:	English
Classification within the Curriculum	~~Compulsory Course~~ / Elective Course
Teaching format / class hours per week during semester:	2 hours of lectures (50 minutes/hour)
Workload:	2 hours of lectures, 2 hours of structural activities, 2 hours of individual study, 14 weeks per semester, and total of 84 hours per semester 2.6 ECTS*
Credit Points:	2
Requirement(s):	(FIT301) Quantum Physics
Learning Goals/Competencies:	**General Competence (Knowledge) :** Students are able to solve the Schroedinger equation for many-electron system. **Specific Competence:** 1. Ability to use variational principle to determine the ground state of simple system. 2. Ability to use Hatree-Fock approximation with the case of H_2 molecule. 3. Ability to derive Kohn-Sham equation in the framework of density functional theory.

Contents:	After learning one-particle quantum system in FIT301 Quantum Physics, here students learn to use advanced mathematical technique to study many-particle quantum system with the case of light atoms and simple molecules. Competence — Literature — Chapter 1 — 1 — 6 2 — 2 — 9 3 — 2 4 — 1 3 — 4 — 3 and 7
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 one assignment (40%) and one final task (60%). Score to grade conversion: A : 75.00 — 100.00 AB : 70.00 — 74.99 B : 65.00 — 69.99 BC : 60.00 — 64.99 C : 55.00 — 59.99 D : 40.00 — 54.99 E : 00.00 — 39.99
Learning Methods:	Lecturing, homework, tutorial
Form of Media:	Whiteboard, projector.
Literature(s):	1. David Griffiths.Introduction to Quantum Mechanics, 2nd edition, Pearson Education, 2005 2. Robert Eisberg and Robert Resnick, Quantum Physics of Atomcs, Molecules, Solid, Nuclei, and Particles, 2nd edition, John Wiley and Sons, 1985 3. Attila Szabo and Neil Ostlund. Introduction to Quantum Chemistry, Dover, 1996 4. Robert Parr and Weito Yang. Density Functional Theory for Atoms and Molecules, Oxford University Press. 1989
Notes:	*Total ECTS={(total hours workloadx50 min)/60 min}/25 hours Each ECTS is equals with 25 hours