MODULE HANDBOOK

Course:	**Special Relativity**
Module Level:	Bachelor
Code:	FIT207
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	4th/ Second Year
Module Coordinator:	Andi Hamim Zaidan M.Si., Ph.D.
Lecture(s):	Andi Hamim Zaidan M.Si., Ph.D. and Febdian Rusydi S.T., M.Sc., Ph.D.
Language:	Bahasa Indonesia
Classification within the Curriculum:	~~Compulsory Course~~ / Elective Studies
Teaching format/class hours per week during the semester:	2 hours lectures, 2 hours tutorial
Workload:	2 hours lectures, 2 hours tutorial and structured activities, 2 hours individual study, 13 weeks per semester, and total 78 hours per semester ~ 2,6 ECTS*
Credit Points	2
Requirement(s):	-
Learning Goals/Competencies:	**General Competence (Knowledge):** 1. Ability to recall and understand some concepts in Newtonian mechanics and electromagnetic theory. 2. Understand the concepts of Minkowskian space-time, Four-vectors, Four-Vector Scalar Products, Invariant Intervals and tensors. 3. Understand the postulates in Einstein Theory of Special Relativity and their implications including Proper Time and Proper Velocity. **Specific Competence:** 1. Able to analyze and solve kinematical problems using postulates in Einstein Theory of Special Relativity 2. Able to analyze and solve kinematical and dynamical problems in Minkowskian space-times using the concepts of four-vectors and tensors 3. Able to analyze and solve Relativistic Electrodynamics in Minkowskian space-times using the concepts of four-vectors and tensors
Contents:	After finishing this course, student has enough knowledge about Four-Vectors, Four-Vector Scalar Products, Invariant Intervals, Minkowski Space-Time Diagrams, Proper Time, Proper Velocity, The Energy-Momentum 4-Vector, Relativistic Kinematics, Elastic/Inelastic Collisions, Compton Scattering, and Relativistic Electrodynamics
Soft Skill Attribute:	Effort and ethics
Study/Exam Achievement:	Students are considered to be competent and passed if at least get 50% of maximum mark of the midterm test, final examination, quizzes and

	home work. Final score is calculated as follow: 35% Exam I + 35% Exam II + 20% Homework + 10% Quiz Final index 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
Learning Methods:	Lectures and assessments
Forms of Media:	Powerpoints slides, LCD projectors and whiteboards.
Literature(s):	1. Griffiths, David J. 1998. *Introduction to Electrodynamics*. 3rd ed. Upper Saddle River, NJ: Prentice Hall. (Chapter 12) 2. B.F. Schutz, 1985, *A First Course in General Relativity*, Cambridge University Press. (chapter 1-3)
Notes:	*Total ECTS = {(total hours workload × 50 min) / 25 hours Each ECTS is equals with 25 hours.