MODULE HANDBOOK

Course:	**Mathematical Physics II**
Module Level:	Undergraduate
Code:	FIT202
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	4^{Th} / Second Year
Module Coordinator:	Drs. Siswanto, M.S.
Lecture(s):	Drs. Siswanto, M.S.; Drs. Adri Supardi,M.S.; Drs. Bambang Suprijanto,M.Si and Drs. R. Arif Wibowo, M.Si.
Language:	Bahasa Indonesia
Classification Within The Curriculum:	Compulsory Course / ~~Elective Course~~
Teaching format/ class hours per week during semester:	4 hours of lectures (50 minutes/hour)
Workload:	4 hours of lectures, 4 hours of tutorial and structured activities, 4 hours of individual activities, 13 weeks per semester, and total of 156 hours per semester ~ 5,2 ECTS*
Credit Points:	4
Requirement(s):	(FIT201) Mathematical Physics I
Learning Goals/Competencies:	**General Competence (Knowledge) :** After following this course, students are able to find the solution of the mathematical model, various problems of physics. **Specific Competence:** 1. The ability to apply mathematics to solve simple physics problems 2. The ability to identify or formulate a mathematical model to solve physics problems 3. The ability to apply mathematics to solve problems of tensor application in physics fields.
Contents:	Ordinary Differential equation methods series, Basic-2 series method, Legendre equation, Frobenius method, indisial equation, the equation Bessel, Hermite equation. Special function, gamma function, beta function, error function, the first type of Bessel function, the second type of Bessel function, the gamma function, orthogonality Bessel functions, Legengre polynomial, orthogonality, Rodrigues formula, Hermite polynomials, Laguerre polynomials. Pers. Partial Differential, the second orde of PD partial, one-dimensional wave equation, separation of variables, solutions D'Alembert, one-dimensional heat flow, Laplace equation in spherical coordinates, two-dimensional wave equation, Helmholtz equation. Sturm-Liouville problem, Pers. Differential self-adjoint operators hermitian, ortogonalisasi Gram-Schmidt, eigen function and eigenvalues, Green function, complex variables, complex functions, limit, derivative, analytic functions, Cauchy-Riemann equations, line integral, Cauchy theorem, Cauchy integral formula, Laurent series, singularities, residue, residue theorem, integral real function. Integral Transformation, Fourier

	transform, inverse theorem, the transformation of a derivative, convolution theorem, transfer functions, Laplace transforms, Faltung theorem, inverse transform.
Soft Skill Attribute:	Effort and ethic
Study/Exam Achievements:	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: 20 % homework + 10% quizzes + 32.5% midterm test + 32.5% final exam + 5% soft skill. 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
Learning Methods:	Lecture, discussion, tutorial
Forms of Media:	Powerpoint slides, LCD projectors and whiteboards
Literature(s):	1. Arfken,G.B.danWeber,H.J.,*Mathematical Methods for Physicist,* 5th ed,Academic Press,1995. 2. Boas,M.L.,*Mathematical Methods in the Physical Sciences*, 3rd ed.,JohnWiley, 2005. 3. Hobson, Riley and J. Bence, 2006, *Mathematical Methods for Physics & Engineering,* Cambridge University Press. 4. Kreyszig,E., 2005, *Advanced Engineering Mathematics*, John Wiley, New York.
Notes:	*Total ECTS={(total hours workloadx50 min)/60 min}/25 hours Each ECTS is equals with 25 hours