1.	Course		Mathematical Physics I
2.	Module Level	:	Undergraduate
3.	Code	:	FIT201
4.	Sub-heading, if applicable	:	-
5.	Courses included in the module, if applicable	:	--
6.	Semester/Term	:	2Th/Fisrt year
7.	Module Coordinator :	:	Drs. Siswanto, M.S
8.	Lecture (s)		Drs. Siswanto, M.S.; Drs. Adri Supardi,M.S.; Drs. Pujiyanto M.Si and Drs. R. Arif Wibowo, M.Si
9	Language		Bahasa Indonesia
10	Classification Within the Curriculum		Compulsory course / ~~Elective Course~~
11	Teaching format/ class hours per week during semester		4 hourss of lectures (50 minutes/hour)
12	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
13	Credit point		4
14	Requirement(s)		Calculus
	Learning Goals/ Cometencies	:	**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 in physics fields (mechanics, electricity and magnetism, thermodynamics, etc)
15	Contents	:	***Series,*** infinite series, convergence, test of convergence, power series, Taylor series, Maclaurin series, binomial series ***Complex Number,*** definition, algebraic properties, Euler formula, exponential form, de Moivre formula**,** hyperbolic function , root of complex number, logaritm, complex planes ***Matrix and Determinan*****,** definition of matrix, basic operation of matrix, determinan, invers of matrices, special matrices, linear equation , Cramer's rule ***Vector Algebra*** **,** definition, algebraic properties of vector , scalar product, vector product**,** triple product ***Fourier Series***, periodic function, trigonometric series, arbritrary periodic, non periodic function, extended function, complex form,

			Parseval theorem ***Partial Differenciation*** multivariable function, partial derivatives, total differential total and total derivatives , exact differential , inexact differential, chain rule, change of variable,thermodynamic relation, extremum with constrain, Lagrange multiplier ***Ordinary Diffferential Equation*** **(ODE),** general form, order and degree, first order ODE, separated variable ODE, exact ODE of fisrt order, inexact ODE, linear equation, homogeneous equation, Bernoulli equation, higher order ODE, second order linear ODE with constant coefficient, linear ODE with variable coefficients,
16.	Softskill Attribute	:	Effort and Ethic
17.	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
18	Learning Methods		Lecture, discussion, tutorial
19.	Forms of Media	:	Powerpoint slides, LCD projector and whiteboard
20.	Literature(s)	:	1. Boas,M.L.,*Mathematical Methods in the Physical Sciences*, 3rd ed.,JohnWiley, 2005. 2. Arfken, G.B and Weber, H.J., 2013, Mathematical Methods for Physicist, 7th ed, Academic Press 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