Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	**General Physics 1 (FD1)**
Semester(s) in which the module is taught	2
Person responsible for the module	Prof. Dr. Agus Subagio, S.Si., M.Si. Dr.Eng. Ali Khumaeni, S.Si.,M.E
Language	Indonesian
Relation to curriculum	Compulsory/~~elective~~/~~specialisation~~
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	Face to Face = 2x50 min Structured tasks = 2 x 60 min Self Study = 2 x 60 min
Credit points	2
Required and recommended prerequisites for joining the module	No requirement

Module objectives/intended learning outcomes	Demonstrate an attitude of being responsible for work in the field of expertise independently.
	Able to apply logical, critical, systematic, and innovative thinking in the development or implementation of science and technology that pays attention to and uses humanities values by their field of expertise.
	Able to demonstrate independent, quality, and measurable performance.
	Able to make decisions regularly in the context of solving problems in their area of expertise, based on the results of analysis of information and data.
	Able to produce appropriate conclusions based on the identification, analysis, isolation, transformation, and synthesis of chemicals that have been carried out.
	Mastering the theoretical concepts of structure, properties, changes, kinetics, and energetics of molecules and chemical systems, identification, separation, characterization, transformation, synthesis of micromolecular chemicals, and their application.

Content	1. Measurement and Units:
	a. Measurement
	b. Fundamental quantities
	c. Basic units
	d. Dimensions and derived units
	e. Vector: magnitude and direction.
	2. Rectilinear motion:
	a. Mechanics
	b. Terms of reference
	c. Speed and acceleration
	d. Vertical movement
	e. Horizontal motion
	3. Curvilinear motion:
	a. Curvilinear movement speed
	b. Acceleration of curvilinear motion
	c. Normal and tangential acceleration
	d. Curvilinear motion with constant acceleration
	e. Relative translational motion: Galilean transformation
	4. Circular motion:
	a. Angular velocity of circular motion
	b. Angular acceleration of circular motion
	c. Relative rotational motion
	d. Motion relative to the earth
	5. Force and Momentum:
	a. Law of inertia and mass
	b. Linear momentum
	c. The principle of conservation of momentum
	d. Newton's Second and Third Laws
	e. The relationship between force and acceleration
	f. Principles of classical relativity
	6. Application of the Laws of Motion:
	a. Resultant forces
	b. Particle equilibrium
	c. Frictional force
	d. A system with variable mass
	e. Torque and angular momentum
	f. Central styles
	7. Work and Energy:
	a. Work and power
	b. Work due to constant force
	c. Energy: kinetic and potential
	d. The relationship between strength and potential energy
	e. Conservation of particle energy
	f. Energy potential curve
	g. Non-conservative forces and energy dissipation
	8. Oscillations:
	a. Simple harmonic motion: pendulum–simple swing and basic equation
	b. Simple harmonic motion force and energy

	c. Superposition of simple harmonic motion d. Silator-oscillator coupling e. Molecular Vibration f. Disharmonious oscillation 9. Atomic structure: periodicity of chemical properties of substances 10. Controlling factors for chemical reactions
Exams and assessment formats	Mid-Semester Exam and Final Exam
Study and examination requirements	Participatory Activities -20% Project Results -30% Cognitive/Task Knowledge -10% Quiz -10% Mid-semester -15% Final exams -15%
Reading list	-