

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	University of Technology
2. University Department/Centre	Chemical Engineering Department
3. Course title/code	Physics
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Full
6. Semester/Year	2 semester/ year
7. Number of hours tuition (total)	2
8. Date of production/revision of this Specification	20/6/2016
9. Aims of the Course	
1. To develop an understanding to the concepts of principle physics and the application of these concepts to solve engineering problems.	
2. Introduction to the units and measurements of some Physics quantities and tools that use for these measurements.	
3. To develop an understanding in mechanics , kinetic energy, Dynamics, forces and matter and its phases	
4. To enhance understanding in modern Physics and communication	
5. Provide practice to develop critical thinking skill, solving problems and work in team.	

10. Learning Outcomes, Teaching, Learning and Assessment Method

A-Knowledge and Understanding

A1. In physical quantities and its measurements

A2. Basic in mechanical Physics and forces that act on anybody in motion, circular motion, falling down etc.

A3. Basic in materials and its phases and its behavior when it puts under forces

A4. Basic in waves, electromagnetic wave, superposition,

A5. Basic in Electric charge, electric field, electric force and its relations.

B. Subject-specific skills

B1. Ability to convert between units and use different way to measure the same quantity.

B2. Ability to solve problem in many physics fields.

B3. Ability to analyse force acts on body in rest and moving state.

B4. Ability to manage AC and DC circuits and calculate current in both circuits.

Teaching and Learning Methods

Lectures, Tutorials, Example Classes, informal and formal teamwork, weekly homework problems

Assessment methods

Midterm exam, final exam, Quizzes, weekly homework, Team and homework problems, partial test (oral questions, multiple choices, alternative response), open questions that have definite answers or indefinite answer, reports

C. Thinking Skills

C1. Using the Knowledge in analysis of engineering problems begins with a simplified model of the actual solution.

C2. Ability to think in using physical concepts to analyse phenomena.

Teaching and Learning Methods

Lectures, data show, Tutorials, Example Classes, informal and formal teamwork, weekly homework problems

Assessment methods

Midterm exams, Final Example, Quizzes, Weekly homework, Team and homework problems

D. General and Transferable Skills (other skills relevant to employability and personal development).

D1. To be creative, particularly and analytical in the formulation and solution of problems

D2. Work together in same-discipline teams to physical literacy

D3. Be creative and have Global Perspective in this field

D4. Work together in same-discipline teams to solve physical problems.

11.Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1st semester					
1	2	Understand some physics phenomena	Introduction to general Physics	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework	partial test like oral questions, multiple choices, alternative response, open questions that have definite answers or un definite answer.
2	2	Ability to understand Physical quantities	Physical quantities	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly	partial test like oral questions, multiple choices
3	2	Ability to understand Physical units	Physical units	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems	partial test like oral questions, multiple choices
4	2	Understanding ways to measure physical quantities	Measurements	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems	partial test like oral questions, multiple choices, alternative response, open questions that have definite answers or un definite answer
5	2	Distinguish between Kinematic and Dynamic Energy	Kinematic and Dynamic Energy	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems	partial test like oral questions, multiple choices

6	2	Understanding Forces acts on body and work done	Forces and Work	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems	partial test like oral questions, multiple choices, alternative response
7	2	Understanding Energy of body in rest and moving and its Power	Energy and power	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems	partial test like oral questions, multiple choices,
8	2	Ability to understand Motion in Circular and Gravitational field	Motion in a Circles and Gravitational field	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework	partial test like oral questions, multiple choices, alternative response,
9	2	provide an understanding of the general principles of matter	Introduction in matter and Phases of matter	Lectures, Tutorials , Example Classes ,	partial test like oral questions, multiple choices
10	2	Ability to understand Deformation of Solids	Deformation of Solids	Lectures, Tutorials , Example Classes ,	partial test like oral questions, multiple choices, alternative response,
11	2	Provide understanding in Ideal gases theory	Ideal Gases	Lectures, Tutorials , Example Classes,	partial test like oral questions, multiple choices,
12	2	Provide understanding in thermal properties	Temperature and thermal properties of matter	Lectures, Tutorials , Example Classes	partial test like oral questions, multiple choices

13	2	Ability to understand type of Waves	Introduction to Oscillation and waves	Lectures, Tutorials , Example Classes	partial test like oral questions, multiple choices, alternative response
14	2	Ability to understand oscillation	Oscillation	Lectures, Tutorials , Example Classes	partial test like oral questions, multiple choices
15	2	Provide understanding in superposition	Waves and super position	Lectures, Tutorials , Example Classes	partial test like oral questions, multiple choices, alternative response
2nd semester					
16	2	Basic principles of Electricity and magnetism	Electricity and magnetism	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems,	partial test like oral questions, multiple choices, alternative response
17	2	provide an understanding of the general principles of electric field and capacitance	Electric field and capacity	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems	partial test like oral questions, multiple choices, alternative response, open questions that have definite answers
18	2	Ability to understand and solving DC circuit problems	Current of electricity and D.C. circuit	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems	partial test like oral questions, multiple choices, alternative response, open questions that have definite answers
19	2	provide an understanding of the general principles of Magnetic, Electromagnetism	Magnetic, Electromagnetism ,	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly homework problems,	partial test like oral questions, multiple choices, alternative response, open questions that have definite answers
20	2	understanding of the general principles of Electromagnetic induction	Electromagnetic induction	Lectures, Tutorials , Example Classes , Informal and formal teamwork , Weekly	partial test like oral questions, multiple choices, alternative response, open questions that have definite answers

21	2	Ability to understand and solving AC circuit problems	Alternating current	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices, alternative response, open questions that have definite answers
22	2	provide an understanding of the general principles of Charge particles	Charge particles	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices,
23	2	provide an understanding of the general principles of Quantum Physics	Quantum Physics	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices , alternative response, open questions that have definite answers
24	2	provide an understanding of the general principles of Atomic models	Atomic models	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices alternative response
25	2	provide an understanding of the general principles of Atomic and nuclear physics	Atomic and nuclear physics	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices
26	2	provide an understanding of the general principles of Direct Sensing	Direct Sensing	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices
27	2	provide an understanding of the general principles of Remote Sensing	Remote Sensing	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices
28	2	provide an understanding of the general principles of Solar Cell	Solar Cell	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices
29	2	provide an understanding of the general principles of Renewable Energy	Renewable Energy	Lectures, Tutorials , Example Classes , Informal and formal teamwork	partial test like oral questions, multiple choices
30			Exam		

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	<ul style="list-style-type: none"> • Lecturers • Books <ol style="list-style-type: none"> 1- Principle of Physics 1st and 2nd edition by Alonso fin 2- Introduction To environmental physics by Nigel Mason and Peter Hughes. 3- Physics for Scientists and Engineers 6th ed. - Serway 4- Fundamentals of Physics - Wiley
Special requirements (include for example workshops, periodicals, IT software, websites)	Websites , Laboratory
Community-based facilities (include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	Before undertaking this module the student should have undertaken the following: Basic Principles of Physics in Secondary School
Minimum number of students	Non
Maximum number of students	Non