GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Diploma in Vocation (D.Voc), 1st Semester
Branch: Software Development
Subject Name: Applied Physics
Subject Code: 1210203

With effective from academic year 2018-19

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory		Tutorial/ Practical		
L	P	OJT	C	University exams (ESE)	Progressive Assessment (PA)	External Practical /viva Exam(ESE)	Internal evaluation Practical /viva Exam(PA)	
3	-	-	3	50	-	-	-	50

L- Lectures; P- Practical; OJT- On Job Training; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Program Objectives:

The basic objectives Physics course are to enable the learner to:

- Acquire knowledge and develop understanding of concepts, fundamental laws, principles andprocesses in the area of physics so that relationship between causes and effects of physical phenomenon can be understood;
- Appreciate the contributions of physics towards improving quality of life;
- Promote interest in physics and foster a spirit of enquiry; and improve competencies of individuals in work skills required in their profession

Course Content: Theory

Unit No.	Content	Hours
1.	**Units & Dimensions:** M.K.S. fundamentals & derived units, S.I. base units, supplementary units and derived units, Dimensions of various physical quantities, uses of dimensional analysis.	**08**
2.	**Surface Tension and Viscosity:** molecular forces, molecular theory of surface tension, surface energy, capillary action, concept of viscosity, coefficient of viscosity, principle and construction of viscometers.	**07**
3.	**Vibrations:** Vibration as simple spring mass system, elementary and qualitative concept of free and forced vibrations, resonance. Effects of vibrations on building bridges and machines members.	**07**
4.	**Heat:** Temperature and its measurement, thermoelectric, platinum resistance thermometers and pyrometers. Conduction through compound media and laws of radiations.	**06**
5.	**Ultrasonics:** Productions of ultrasonic waves by magnetostriction and piezo-electric effect, application of ultrasonics in industry.	**07**
6	**Optics:** Nature of light, reflection and refraction of a wave from a plane surface. Overhead projector and Epidiascope.	**07**
	Total Hours:	**42**

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
5	20	15	5	5

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Bloom's Taxonomy)

Reference Books:

1. Engineering Physics I by Mani P. Dhanam Publications.
2. Engineering Physics by Marikani A. PHI Learning Pvt., India.
3. Engineering Physics by Palanisamy P.K. SCITECH Publications.
4. Materials Science by Palanisamy P.K. SCITECH Publishers.

Course Outcomes:

At the end of this course students will be able to:

- The students will have knowledge on the basics of physics related to properties of matter, optics, acoustics etc., and they will apply these fundamental principles to solve practical problems related to materials used for engineering applications.
- The students will have the knowledge on physics of materials and that knowledge will be used by them in different engineering and technology applications.