ANNEXURE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN ENGINEERING / TECHNOLOGY SYLLABUS
M-SCHEME
(Implements from the Academic year 2015-2016 onwards)

Course Name :All branches of Diploma in Engineering and Technology and Special Programmes except DMOP, HMCT and film & TV.

Subject Code : **30025**

Semester : II Semester

Subject Title : **ENGINEERING CHEMISTRY – II**

TEACHING AND SCHEME OF EXAMINATION:

No. of Weeks per Semester: 15 Weeks

Subject	Instructions		Examination			
			Marks			Duration
	Hours/ Week	Hours/ Semester	Internal Assessment	Board Examination	Total	
ENGINEERING CHEMISTRY - II	5	75	25	75	100	3 Hrs

Topics and Allocation of Hours:

Sl. No	Topics	Time (Hours)
1	Environmental Chemistry	13 Hours
2	Fuels, Combustion and Refractories	13 Hours
3	Extraction of metals, Powder Metallurgy, Alloys and Abrasives	13 Hours
4	Cement, Ceramics, Lubricants and Adhesives	13 Hours
5	Polymer Chemistry	13 Hours
	Revision and Examinations	10 Hours
Total		**75 Hours**

RATIONALE:

Modern development of industries require more understanding of materials required for Engineering and industrial purposes. This part of chemistry explains various aspects with regard to environment, fuels, metals and alloys and polymers. This subject will develop basic understanding and skill of Engineering Students.

OBJECTIVES:

The objective of this Course is to make the student:

1. To acquire knowledge about Environmental Chemistry.
2. To acquire knowledge about fuels, advantages and combustion of fuels and analysis and refractories.
3. To know about extraction of metals, powder metallurgy, alloys, and abrasives.
4. To acquire knowledge about cement, ceramics, lubricants and adhesives.
5. To know about polymer materials.

30025 ENGINEERING CHEMISTRY – II

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topic	Hours
I	**ENVIRONMENTAL CHEMISTRY** **1.1 Air Pollution** Pollution and Air pollution – Definition – Air pollutants (SO_2, H_2S, HF, CO and Dust) – Sources and Harmful effects – Formation of Acid Rain – Harmful effects – Green House Effect – Causes – Global warming – Harmful effects – Ozone Layer – Importance – Causes for Depletion of Ozone Layer (No equations) – Harmful effects of Ozone Layer Depletion – Control of Air Pollution. **1.2 Water Pollution** Causes of Water Pollution – Sewage, Effluents, Algae and Microorganisms –	

Unit	Name of the Topic	Hours
V	**POLYMERS** **5.1 Plastics** Plastics – Definition - Polymerization – Definition – Types of polymerization – Addition polymerization – Formation of Polythene – Condensation polymerization – Formation of Bakelite – Types of plastics – Thermoplastics and Thermoset plastics – Differences – Mechanical properties of plastics – Advantages of plastics over traditional materials (Wood and Metal) –Reinforced or filled plastics – Definition – Advantages – Applications – Polymers in Surgery – Biomaterials – Definition – Biomedical uses of Polyurethane, PVC, Polypropylene and Polyethylene.	**6 Hrs**
	5.2 Rubber Definition – Preparation from Latex – Defects of natural rubber– Compounding of rubber – Ingredients and their functions – Vulcanization – Definition and Purpose – Reclaimed rubber – Definition – Process – Properties and uses.	**5 Hrs**
	5.3 Composite materials Definition – Examples – Advantages over metals and polymers – General applications.	**2 Hrs**

Text Book:

1. Engineering Chemistry – Jain & Jain – Dhanpat Rai & Sons.
2. A Text Book of Engineering Chemistry – S.S. Dara – S. Chand Publication.

Reference Book:

1. Chemistry of Engineering Material-C.V. Agarwal, Andranaidu C. Parameswara Moorthy – B.S. Publications.
2. Engineering Chemistry – Uppal – Khanna Publishers.
3. A Text Book of Inorganic Chemistry – P.L. Soni – S. Chand Publication.
4. Rain Water Harvesting – Hand Book – Chennai Metro Water.

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Board Examination - Question paper pattern

Time: 3 Hrs. **Max.Marks: 75**

PART A - 5 Questions to be answered out of **8** for 2 marks each.

PART B - 5 Questions to be answered out of **8** for 3 marks each.

PART C - All the **5** Questions to be answered

Each question in PART C will contain **3** Sub questions, out of these **3** Sub questions **2** Sub questions is to be answered for 5 marks each.

PART A	**5** x 2 marks	**10** Marks
PART B Short answer type questions	**5** x 3 marks	**15** Marks
PART C Descriptive answer type questions Each question in PART C will contain **3** Sub questions, out of these **3** Sub questions **2** Sub questions is to be answered for 5 marks each.	**5 x 2** x 5 marks	**50** Marks
Total		**75** Marks

Out of the **3 Sub questions** in **PART C, one sub question** must be on problem based to test the analytical ability/logical ability /diagnostic ability/conceptual ability relevant to that subject content. Equal weightage is to be given to whole syllabus.

Clarks table will not be permitted for the Board Examinations.