



**GUJARAT TECHNOLOGICAL UNIVERSITY**

**Syllabus for Diploma in Vocation (D.Voc), 3<sup>rd</sup> Semester Branch:**

**Refrigeration & Air Conditioning**

**Subject Name: Safety Practices in RAC Industry**

**Subject Code: 1230406**

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Examination Marks				Total Marks
L	P	OJT		Theory		Tutorial/ Practical		
			University exams (ESE)	Progressive Assessment (PA)	External Practical /viva Exam(ESE)	Internal evaluation Practical /viva Exam(PA)		
0	0	15	15	0	0	100	100	200

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

**Course Content:**

Unit No.	Content	No. of Hours	% of Weightage
1.	<b>Introduction to RAC Safety</b> a. Importance of safety in RAC industry b. Nature of hazards in RAC work c. Accident statistics and common causes d. Safety responsibilities of RAC technicians e. Safety culture and safe behavior at workplace	25	8
2.	<b>Personal Protective Equipment (PPE)</b> a. Types of PPE used in RAC work b. Safety shoes, gloves, goggles, helmets c. Respiratory protection (masks, respirators) d. Hearing protection (ear plugs) e. Selection, proper use, and maintenance of PPE f. Limitations of PPE	30	10
3.	<b>Refrigerant Safety &amp; Handling</b> a. Types of refrigerants (CFC, HCFC, HFC, HFO – overview) b. Health hazards of refrigerants c. Toxicity and flammability classification d. Safe storage and transportation of refrigerant cylinders e. Leak detection methods f. Safe charging and recovery practices	35	10
4.	<b>Electrical Safety in RAC Systems</b> a. Electrical hazards in RAC equipment b. Safe isolation and lockout procedures c. Wiring safety for compressors and motors d. Capacitors, relays, and contactor safety e. Use of electrical testing instruments f. Prevention of electric shock	30	10
5	<b>Mechanical &amp; Tool Safety</b> a. Safe use of RAC hand and power tools b. Brazing and soldering safety c. Handling sharp edges and rotating parts	30	15



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	d. Lifting and material handling techniques		
	e. Ladder and height safety during installations		
	<b>Total</b>	<b>150</b>	<b>100</b>

**Suggested Specification table with Marks (OJT):**

<b>Distribution of Theory Marks</b>				
R Level	U Level	A Level	N Level	E Level
45	45	50	40	20

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

**References :**

1. Refrigeration and Air Conditioning – C. P. Arora & S. C. Domkundwar, Dhanpat Rai Publications
2. Industrial Safety and Environment – K. U. Mistry, S. Chand & Co.
3. Safety in Engineering Industries – Raghuwanshi, Katson Books

**(b) Open source software and website:**

1. <https://www.nsdcindia.org/nos>
2. <https://psdmhq.in/course/content>
3. <https://nptel.ac.in/>
4. <https://www.cstaricalcutta.gov.in/>



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**Syllabus for Diploma in Vocation (D.Voc), 3<sup>rd</sup> Semester**

**Branch: Electrical Wiring**

**Subject Name: Electrical Hazard Management**

**Subject Code:**