

## 1. SALIENT FEATURES OF THE DIPLOMA PROGRAMME IN RUBBER TECHNOLOGY

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|----|---|---|--|
| 1. | Name of the Programme                     | : | Diploma programme in Rubber Technology   |
| 2. | Duration of the Programme                 | : | Six Semesters (Three Years)  |
| 3. | Entry Qualification                       | : | Matriculation or equivalent as prescribed by State Board of Technical Education, Haryana |
| 4. | Intake                                    | : | 40   |
| 5. | Pattern of the Programme                  | : | Semester System  |
| 6. | Ratio between theory and Practice classes | : | 50: 50   |

### 7) Industrial Training:

Four weeks of industrial training is included after IV semester during summer vacation. Internal assessment out of 50 marks and external assessment out of another 50 marks will be added in 5<sup>th</sup> semester. Total marks allotted to industrial training will be 100.

Distribution of Marks:

- |   |                                     |   |          |
|---|-------------------------------------|---|----------|
| ➤ | Daily diary and reports of training | - | 50 Marks |
| ➤ | Viva Voce (External)                | - | 50 Marks |

### 8) Ecology and Environment:

As per Govt. of India directives, a subject on Environmental Education has been incorporated in the scheme.

### 9) Entrepreneurship Development:

A subject on Entrepreneurship Development and Management has been incorporated in the scheme.

### 10) Student Centred Activities:

A provision of 5-6 hrs per week has been made for organizing Student Centred Activities for overall personality development of students. Such activities will comprise of co-curricular activities like extension lectures, library studies, games, hobby clubs e.g. photography, painting, singing, seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities, Civil Defence/ Disaster Management activities etc

## 2. EMPLOYMENT OPPORTUNITIES

Employment opportunities for diploma holders in Rubber Technology are visualized in following industries at various levels/positions:

- Processing Industries such as:
  - Packaging
  - Carry bag
  - Raw material manufacturing
  - Household articles
  - Paints, Coatings and lacquers
  - Adhesives
  - Wire and Cable coatings
  - Conduit pipes
  
- Rubber Processing Units
- Chemical Industry
- Industries manufacturing electrical components and accessories
- Automobile industry
- Pulp and Paper Industry
- Textile Industry
- Consumer goods industry
- Polymer Industry
- Foot wear Industry
- Agricultural Appliances Industry
- Leather Industry
- Furniture making units
- Toy manufacturing
- Rubber Industry
- Rixin manufacturing Unit

In industry, diploma holders in Rubber Technology can be placed in departments like Research and Development, Production, Marketing, Customer Care and Quality Control etc.

These diploma holders can also be placed in educational institutions as teachers, demonstrators and laboratory technicians.

These diploma holders can also set up their own small scale industries.

### 3. COMPETENCY PROFILE

Keeping in view the employment opportunities of diploma holders in Rubber Technology, the course is aimed at developing following knowledge and skills in the students:

1	Understanding of general principles of applied sciences and basics of engineering to function effectively as a rubber technologist
2	Ability to communicate verbally and in writing to perform functions at technician engineer level
3	Understanding of basic concepts and principles of electrical and electronics engineering
4	Ability to prepare, read and interpret engineering drawings
5	Understanding of various rubber raw materials, additives and compounds used for commodity products and engineering items, and their selection for various applications.
6	Knowledge and Associated skills of various unit operations, unit processing and process instrumentation and control in rubber industry
7	Ability to calculate the quantity of raw materials, energy outputs, manpower requirements and output from the process
8	Ability to control the process and quality of the products commensurating with laid specifications
9	Understanding of basic principles of managing men, material and machines/ equipment for optimum production
10	Appreciation of the need of clean environment and its deterioration by various emissions from industry and preventive procedures and knowledge of safety regulations in rubber industry
11	Development of generic skills of thinking and problem solving, communication, attitudes and value system for effective functioning in a rubber industry
12	Proficiency in the use of computers
13	Basic manual and machining skills as an aid to function effectively in the rubber industry
14	Understanding of basic testing standards and ability to achieve quality assurance of rubber components/material
15	Ability to manage shop floor activities with a view to optimize the use of men, material and machines for achieving the laid down targets
16	Ability to interpret design and drawing of products, moulds and dies.
17	Ability to formulate a design for the product and design a suitable mould/die for fabricating the component
18	Ability to formulate suitable compounds so as to make rubber products of desired properties
19	Ability to maintain and upkeep of rubber processing machinery
20	Ability to cope up with advancements in the field of rubber and to gain speciality
21	Development of good personality in order to have effective communication business ethics and generic skills

#### 4. DERIVING CURRICULUM AREAS FROM COURSE OBJECTIVES

The following curriculum areas have been derived from course objectives:

Sr. No.	Curriculum Objectives	Curriculum Areas/ Subjects
1	Understanding of general principles of applied sciences and basics of engineering to function effectively as a rubber technologist	<ul style="list-style-type: none"> <li>- Applied Chemistry</li> <li>- Applied Physics</li> <li>- Applied Mathematics</li> <li>- Engineering Fundamentals</li> <li>- Applied Mechanics</li> </ul>
2	Ability to communicate verbally and in writing to perform functions at technician engineer level	<ul style="list-style-type: none"> <li>- Communication Skills</li> </ul>
3	Understanding of basic concepts and principles of electrical and electronics engineering	<ul style="list-style-type: none"> <li>- Engineering Fundamentals</li> </ul>
4	Ability to prepare, read and interpret engineering drawings	<ul style="list-style-type: none"> <li>- Engineering Drawing</li> <li>- Computer Aided Drafting</li> </ul>
5	Understanding of various rubber raw materials, additives and compounds used for commodity products and engineering items, and their selection for various applications	<ul style="list-style-type: none"> <li>- Applied Chemistry</li> <li>- Rubber Materials</li> <li>- Polymer Science</li> <li>- Strength of Materials</li> </ul>
6	Knowledge and Associated skills of various unit operations, unit processing and process instrumentation and control in rubber industry	<ul style="list-style-type: none"> <li>- Unit Operations</li> <li>- Engineering Fundamentals</li> <li>- Rubber Processing Techniques</li> </ul>
7.	Ability to calculate the quantity of raw materials, energy outputs, manpower requirements and output from the process	<ul style="list-style-type: none"> <li>- Unit Operations</li> </ul>
8	Ability to control the process and quality of the products commensurating with laid specifications	<ul style="list-style-type: none"> <li>- Rubber Testing, Characterization and Quality Control</li> </ul>
9	Understanding of basic principles of managing men, material and machines/ equipment for optimum production	<ul style="list-style-type: none"> <li>- Entrepreneurship Development and Management</li> </ul>
10	Appreciation of the need of clean environment and its deterioration by various emissions from industry and preventive procedures and knowledge of safety regulations in rubber industry	<ul style="list-style-type: none"> <li>- Pollution Control in Rubber Industry</li> <li>- Environmental Education</li> </ul>

11	Development of generic skills of Thinking and Problem Solving, Communication, attitudes and value system for effective functioning in a rubber industry	<ul style="list-style-type: none"> <li>- Industrial visits</li> <li>- Project work</li> <li>- Employability Skills</li> </ul>
12	Proficiency in the use of computers	<ul style="list-style-type: none"> <li>- Computer Aided Drafting</li> <li>- Basics of information technology</li> </ul>
13	Basic manual and machining skills as an aid to function effectively in the rubber industry	<ul style="list-style-type: none"> <li>- General Workshop Practice</li> </ul>
14	Understanding of basic testing standards and ability to achieve quality assurance of rubber components/material	<ul style="list-style-type: none"> <li>- Applied Physics</li> <li>- Applied Chemistry</li> <li>- Rubber Testing, Characterization and Quality Control</li> </ul>
15	Ability to manage shop floor activities with a view to optimise the use of men, material and machines for achieving the laid down targets	<ul style="list-style-type: none"> <li>- Rubber Processing Techniques</li> </ul>
16.	Ability to interpret design and drawing of products, moulds and dies	<ul style="list-style-type: none"> <li>- Computer Aided Drafting</li> <li>- Engineering Drawing</li> <li>- Rubber Product Design</li> <li>- Computer Aided Mould Design</li> </ul>
17.	Ability to formulate a design for the product and design a suitable mould/die for fabricating the component	<ul style="list-style-type: none"> <li>- Design of Rubber Moulds and Dies</li> <li>- General Workshop Practice</li> <li>- Computer Aided Mould Design</li> </ul>
18.	Ability to formulate suitable compounds so as to make rubber products of desired properties	<ul style="list-style-type: none"> <li>- Compounding and Formulation of Rubber</li> <li>- Applied Physics</li> </ul>
19.	Ability to maintain and upkeep of rubber processing machinery	<ul style="list-style-type: none"> <li>- Maintenance of Rubber Processing Machinery</li> </ul>
20.	Ability to cope up with advancements in the field of rubber and to gain specialty	<ul style="list-style-type: none"> <li>- Polymer Composites</li> <li>- Latex Technology</li> </ul>
21.	Development of good personality in order to have effective communication business ethics and generic skills	<ul style="list-style-type: none"> <li>- Student Centered Activity</li> <li>- Employability Skills</li> </ul>

## 5. ABSTRACT OF CURRICULUM AREAS/SUBJECTS

Following is the abstract of curriculum areas:

### a) General Studies

1. Communication skills
2. Basics of Information Technology
3. Employability Skills
4. Environmental Education
5. Entrepreneurship Development and Management

### b) Applied Science

6. Applied Mathematics
7. Applied Physics
8. Applied Chemistry

### c) Basic Courses in Engineering/Technology

9. Applied Mechanics
10. Engineering Drawing
11. General Workshop Practice
12. Engineering Fundamentals
13. Strength of Materials

### d) Core Courses in Engineering/Technology

14. Unit Operations
15. Polymer Science
16. Rubber Materials
17. Computer Aided Drafting
18. Rubber Processing Techniques
19. Rubber Testing, Characterization and Quality Control
20. Latex Technology
21. Polymer Composites
22. Computer Aided Mould Design
23. Design of Rubber Moulds and Dies
24. Compounding and Formulation of Rubber
25. Rubber Product Design
26. Environmental Education
27. Pollution Control in Rubber Industry
28. Maintenance of Rubber Processing Machinery
29. Entrepreneurship Development and Management
30. Project Work



