

1. SALIENT FEATURES OF THE DIPLOMA PROGRAMME IN CHEMICAL ENGINEERING (SPL. IN PAINT TECHNOLOGY)

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| 1. | Name of the Programme | : | Diploma programme in Chemical Engineering (Spl. in Paint 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 5th semester. Total marks allotted to industrial training will be 100.

Distribution of Marks:

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| ➤ 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 Chemical Engineering (Spl. in Paint Technology) are visualized in following industries at various levels/positions:

i) Chemical and Allied Industries like

- (i) Pigment Industry
- (ii) Steel plant
- (iii) Cosmetic Industry
- (iv) Paint Industry
- (v) Dye Industry
- (vi) Pulp and Paper industry
- (vii) Automobile Industry
- (viii) Consumer goods industry
- (ix) Polymer industry
- (x) Coating Industry
- (xi) Leather industry
- (xii) Pharmaceutical industry
- (xiii) Rubber industry
- (xiv) Textile industry etc.

In various functional areas like erection and commissioning of plant, plant operation, production, maintenance and safety, quality control, inspection and testing, marketing and sales, consultancy services and areas concerning environmental protection.

- (ii) Research Organizations like CSIR laboratories, Defence laboratories, Atomic energy establishments etc.
- (iii) Boards and Corporations.
- (iv) Entrepreneurs to small/tiny units especially Dye, Coating and chemical industries.
- (v) Academic Institution (as technicians/instructors at all levels).

3. COMPETENCY PROFILE

Keeping in view the employment opportunities of diploma holders in Chemical Engineering (Spl. in Paint Technology) , the course is aimed at developing following knowledge and skills in the students:

1.	Basic understanding of concepts and principles related to applied sciences and basics of engineering as a foundation for further studies.
2.	Development of communication and interpersonal skills for effective functioning in the world of work.
3.	Understanding of basic concepts and principles of electrical and electronics engineering so as to enable the students to apply the knowledge of these principles to the field of chemical engineering/paint technology.
4.	Ability to read and interpret drawings related to plant layout, process equipment and components.
5.	Knowledge of various materials used in chemical processes, their properties and specifications.
6.	Knowledge and associated skills of various unit operations, unit processes and process instrumentation and control in process industry.
7.	Ability to calculate the quantity of raw materials, energy inputs, manpower requirement 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 process industry.
11.	Development of generic skills of thinking and problem-solving, communication, attitudes and value system for effective functioning in a process industry.
12.	Proficiency in the use of computers.
13.	Basic manual and machining skills as an aid to function effectively in the process industry.
14.	Knowledge of testing and quality control activities.
15.	Detailed knowledge of principles of polymerisation, coatings, pigment technology, resin technology and paint technology.
16.	Detailed knowledge of printing techniques and technology involved in these..
17.	Detailed knowledge of corrosion and its prevention

4. DERIVING CURRICULUM AREAS FROM COMPETENCY PROFILE

The following curriculum areas have been derived from competency profile:

Sr. No.	Competency	Curriculum Areas/Subjects
1.	Basic understanding of concepts and principles related to applied sciences and basics of engineering as a foundation for further studies.	<ul style="list-style-type: none"> - Applied Physics - Applied Chemistry - Applied Mathematics - Applied Mechanics
2.	Development of communication and interpersonal skills for effective functioning in the world of work.	<ul style="list-style-type: none"> - Communication Skills - Employability Skills
3.	Understanding of basic concepts and principles of electrical and electronics engineering so as to enable the students to apply the knowledge of these principles to the field of chemical engineering.	<ul style="list-style-type: none"> - Elements of Electrical and Electronics Engineering
4.	Ability to read and interpret drawings related to plant layout, process equipment and components.	<ul style="list-style-type: none"> - Engineering Drawing - Computer Aided Drafting
5.	Knowledge of various materials used in chemical processes, their properties and specifications.	<ul style="list-style-type: none"> - Polymer Science - Elements of Surface Coating - Applied Chemistry
6.	Knowledge and associated skills of various unit operations, unit processes and process instrumentation and control in process industry.	<ul style="list-style-type: none"> - Chemical Reaction Engineering - Fluid Flow - Mechanical Operations - Heat Transfer - Mass Transfer - Process Instrumentation and Control - Chemical Engineering Thermodynamics - Process Plant Utilities
7.	Ability to calculate the quantity of raw materials, energy inputs, manpower requirement and output from the process.	<ul style="list-style-type: none"> - Chemical Process Calculations - Chemical Reaction Engineering

8.	Ability to control the process and quality of the products commensurating with laid specifications.	<ul style="list-style-type: none"> - Process Instrumentation - Chemical Engineering Thermodynamics - Reaction Engineering - Process Control
9.	Understanding of basic principles of managing men, material and machines/ equipment for optimum production.	<ul style="list-style-type: none"> - Entrepreneurship Development and Management
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 process industry.	<ul style="list-style-type: none"> - Environmental Education
11.	Development of generic skills of thinking and problem-solving, communication, attitudes and value system for effective functioning in a process industry.	<ul style="list-style-type: none"> - Industrial Visits - Project Work - Process Equipment Design - Employability Skills
12.	Proficiency in the use of computers.	<ul style="list-style-type: none"> - Basics of Information Technology - Computer Aided Drafting
13.	Basic manual and machining skills as an aid to function effectively in the process industry.	<ul style="list-style-type: none"> - General Workshop Practice
14.	Knowledge of testing and quality control activities.	<ul style="list-style-type: none"> - Quality Control and Testing of Coatings.
15.	Detailed knowledge of principles of polymerisation, coatings, pigment technology, resin technology and paint technology.	<ul style="list-style-type: none"> - Elements of Surface Coatings - Special purpose coatings - Polymer Science - Pigment Technology - Resin Technology - Paint Technology
16.	Detailed knowledge of printing techniques and technology involved in these.	<ul style="list-style-type: none"> - Printing Ink Technology
17.	Detailed knowledge of Corrosion and its Prevention	<ul style="list-style-type: none"> - Corrosion Engineering

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

d) Core Courses in Engineering/Technology

13. Paint Technology
14. Fluid Flow
15. Polymer Science
16. Chemical Process Calculations
17. Mechanical Operations
18. Computer Aided Drafting
19. Resin Technology
20. Heat Transfer
21. Mass Transfer
22. Chemical Engineering Thermodynamics
23. Pigment Technology
24. Quality Control and Testing of Coatings
25. Chemical Reaction Engineering
26. Adhesives and Surface Coatings
27. Process Plant Utilities
28. Corrosion Engineering
29. Process Instrumentation and Control
30. Entrepreneurship Development and Management
31. Project Work

