

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI																	
TEACHING AND EXAMINATION SCHEME																	
COURSE NAME : DIPLOMA IN SURFACE COATING TECHNOLOGY.																	
COURSE CODE : SC																	
DURATION OF COURSE : SIX SEMESTERS /THREE YEARS									WITH EFFECT FROM 2007-08								
SEMESTER : SECOND									DURATION : 16 WEEKS								
FULL TIME/PART TIME : FULL TIME									SCHEME : C								
Sr. No.	SUBJECT TITLE	SUBJECT CODE	TEACHING SCHEME			EXAMINATION SCHEME											
			TH	TU	PR	PAPER HRS.	TH		TEST	TOTAL		PR		OR		TW	
							Max	Min		Max	Min	Max	Min	Max	Min		
01	Communication Skills \$	9005	02	--	02	03	80	28	20	100	40	--	--	25#	10	25@	10
02	Applied Chemistry- II	9620	03	--	03	03	80	28	20	100	40	--	--	--	--	25@	10
03	Industrial Chemistry	9621	03	--	03	03	80	28	20	100	40	50#	20	--	--	25@	10
04	Technology of Resins-II	9622	03	-	03	03	80	28	20	100	40	--	--	--	--	25@	10
05	Technology of Pigments-II	9623	03	--	03	03	80	28	20	100	40	--	--	--	--	25@	10
06	Development of Life Skills-I \$	--	02	--	02	--	--	--	--	--	----	--	--	25#	10	25@	10
TOTAL			16	--	16	--	400	--	100	500	--	50	--	50	--	150	--

STUDENT CONTACT HOURS PER WEEK (FORMAL TEACHING) : **32 HOURS**

THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.

@ - INTERNAL ASSESSMENT, # - EXTERNAL ASSESSMENT, \$ - COMMON WITH ENGINEERING AND TECHNOLOGY COURSES.

TOTAL MARKS : 750

ABBREVIATIONS : TH – THEORY, TU – TUTORIAL, PR – PRACTICALS, OR – ORAL, TW – TERM WORK.

All Practical, Oral & Term work assessment are to be done as per the prevailing curriculum implementation & assessment norm.

Course Name : Diploma in Surface Coating Technology

Course Code : SC

Semester : Second

Subject Title : Communication Skills

Subject Code : 9005

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
02	--	02	03	80	20	--	25#	25@	150

RATIONALE:

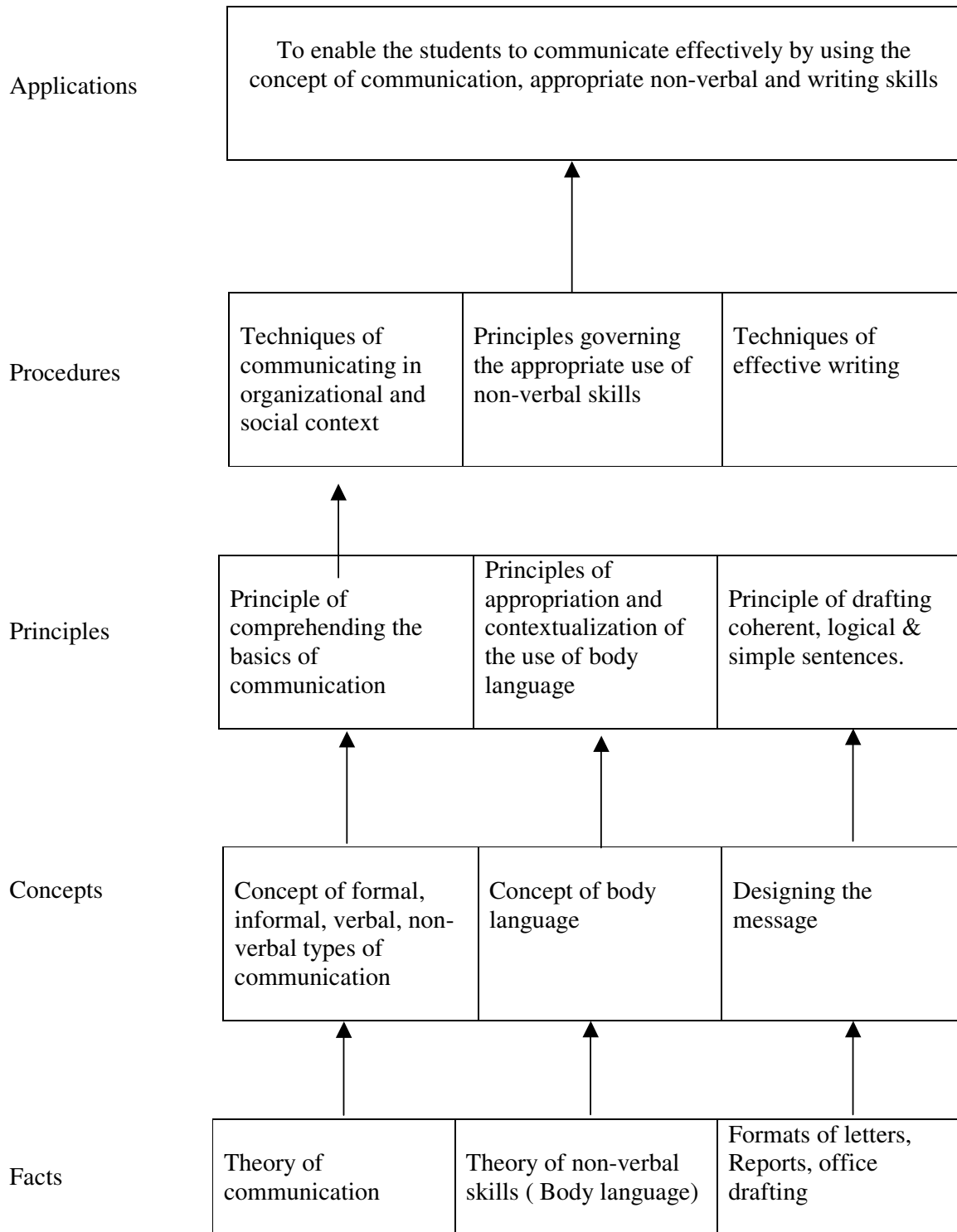
The Students have been already been exposed to the Language Skills pertaining to English, leading to a better understanding of English & use of grammar, developing a base for the language. Now with a view to achieve some mastery over the language & to develop Communication Skills, which is the main objective of this subject, the basic concepts of communication, Non-verbal and written skills have been Introduced.

OBJECTIVES:

The Students will be able to:

- 1) Understand and use the basic concepts of communication and principles of effective communication in an organized set up and social context.
- 2) Give a positive feedback in various situations, to use appropriate body language & to avoid barriers for effective communication.
- 3) Write the various types of letters, reports and office drafting with the appropriate format.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	Introduction to communication: 1.1 Definition , communication cycle/ process, 1.2 The elements of communication : sender- message – channel- Receiver –Feedback & Context. 1.3 Definition of communication process. 1.4 Stages in the process : defining the context, knowing the audience, designing the message, encoding , selecting proper channels, transmitting, receiving, decoding and giving feedback.	04	08
02	Types of communication Formal- Informal, Verbal- Nonverbal, Vertical- horizontal- diagonal	04	08
03	Principles of effective communication : 3.1 Definition of effective communication 3.2 Communication barriers & how to overcome them. 3.3 Developing effective messages: Thinking about purpose, knowing the audience, structuring the message, selecting proper channels, minimizing barriers & facilitating feedback.	04	10
04	Non verbal- graphic communication: 4.1 Non- verbal codes: A- Kinesecs , B- Proxemics , C – Haptics D-Vocalics , E- Physical appearance. F -Chronemics , G –Artifacts Marks: 08 4.2 Aspects of body language Marks: 06 4.3 Interpreting visuals & illustrating with visuals like tables, charts & graphs. Marks: 08	08	22
05	Formal written skills : 5.1 Office Drafting : Circular, Notice , and Memo. Marks: 06 5.2 Job Application with resume. Marks: 08 5.3 Business correspondence : Enquiry, Order letter, Complaint letter, and Adjustment letter. Marks: 06 5.4 Report writing : Accident report, fall in production, Progress / Investigative. Marks: 08 5.5 Defining & describing objects & giving Instructions. Marks: 04	12	32
Total		32	80

Assignments:

1. Communication Cycle (With The Help Of Diagram)
2. Communication Situations (List Of 5 Communication situations stating the type of communication)
3. Barriers That Hinder A Particular Communication Situation. (State the type of barrier, and how to overcome them).
4. Developing A Story Or A Paragraph For The Given Topic Sentence.(in a group of 5 – 6 students)
5. Describing Various Equipments.
6. Identifying The Various Sentences With Their Type Of Writing. (e.g. Scientific, legal, colloquial etc.)
7. Business Letters
8. Letters Of Suggestion
9. Comparative Time Table Of 2 Students
10. Description Of Two Different Persons.(seeing the picture)
11. Letter To The Librarian, Principal
12. Report Writing.

NOTE: The above assignments are suggested to be completed in the prescribed work-book.

Learning Resources:**Books:**

Sr. No.	Author	Title	Publisher
01	Krushna Mohan, Meera Banerji	Developing Communication Skills	Macmillan
02	Joyeeta Bhattacharya	Communication Skills	Reliable Series
03	Jayakaran	Every ones guide to effective writing	Apple publishing

Course Name : Diploma in Surface Coating Technology

Course Code : SC

Semester : Second

Subject Title : Applied Chemistry-II

Subject Code : 9620

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
03	--	03	03	80	20	--	--	25@	125

RATIONALE :

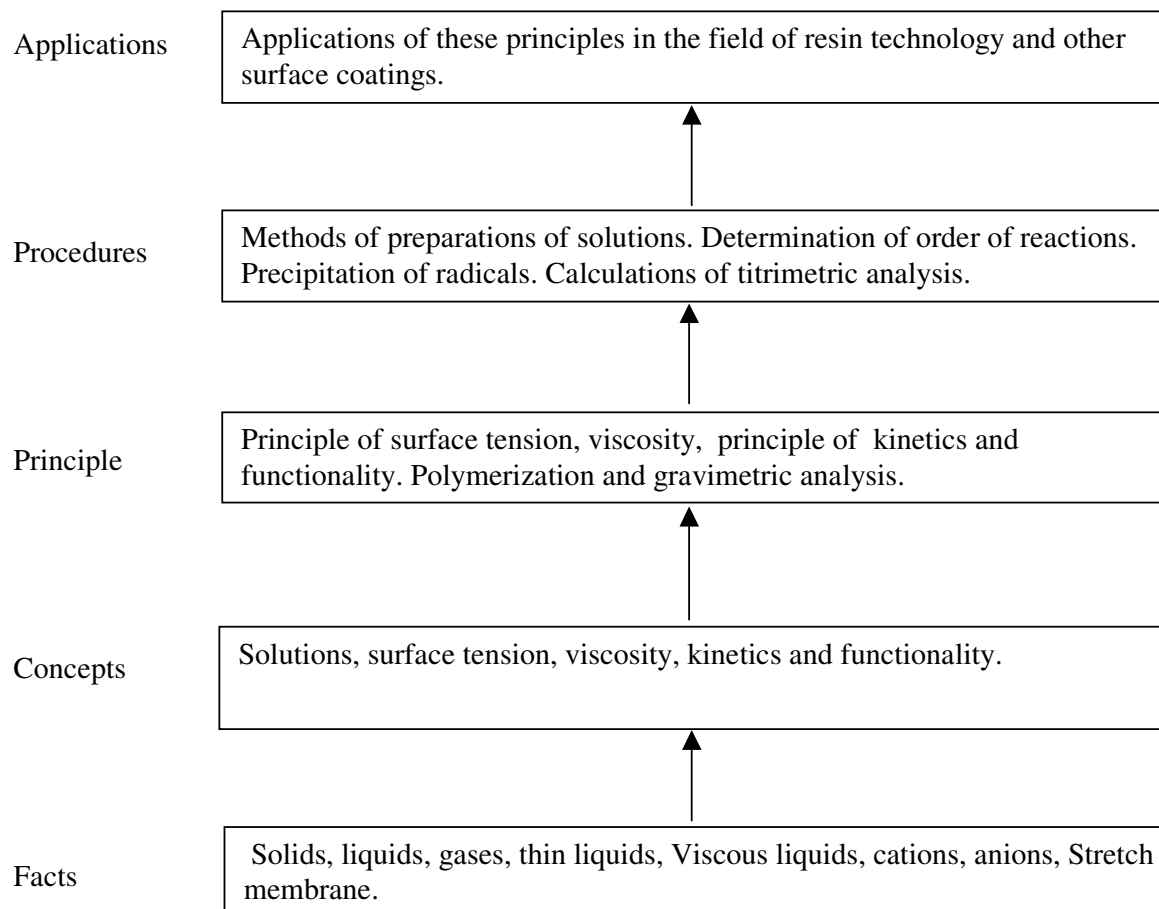
This subject will explain concept of Functionality, Reaction mechanism and chemical kinetics. The subject will also help the students to understand physical properties and analysis of raw materials used in Surface coatings and their applications.

OBJECTIVES :

The students will be able to :

1. Explain importance of functionality and reaction mechanism.
2. Identify chemistry of basic raw materials used in Surface coatings such as vinyl chloride, styrene, acrylic, cellulose etc.
3. Prepare solutions and state their applications.

Learning Structure:



Contents : Theory :

Chapter	Name of the topic	Hours	Marks
1	Solutions – 1.1 Definition and types. Molecular weight, Equivalent weight and their significance. Liquids in liquids, theory of distillation of miscible liquids and immiscible liquids. Marks : 08 1.2 Condensers and their applications. Azotropes and their applications. Marks : 04	08	12
2	Physical Properties & Their Significance – Physical properties such as density, specific gravity, surface tension, viscosity and refractive index of liquids. M.P., B.P., Boiling range.	08	12
3	Chemical Kinetics – Definition. Order of reaction, Molecularity of reaction. First order, second order reaction and their characteristics. Zero order reaction. Determining the order of reactions. Calculations of first and second order reaction.	08	12
4	Concept of Functionality. – 4.1 Definition and concept of functionality. Application of functionality to macro molecule, molecular weight of compounds and polymers. Marks : 04 4.2 Study of compounds such as Isoprene, vinyl chloride, styrene, acrylic acid. Marks : 04 4.3 Reaction Mechanism. Homolytic and heterolytic fission. Definition of Electrophilic and nucleophilic substitution. Mechanism of electrophilic substitution reaction like nitration, halogenations and sulphonation. Marks : 08	08	16
5	Gravimetric Analysis – Introduction, principle, requisites, solubility and solubility product. Colloidal conditions and coagulation of colloidal particles. Optimum conditions for precipitation. Wash liquid and techniques for washing. Thermo-gravimetric analysis.	08	12
6	Analytical Chemistry : 6.1 Introduction, Principles of Spectroscopy. Basic functions of Spectrometer. Instrumental analysis. Marks : 06 6.2 Principles, working and application of UV, IR, Atomic absorption. GC, GLC and GPC. Paper column thin layer chromatography (TLC). Marks : 10	08	16
Total		48	80

Practical :**Skills : Intellectual skills :**

1. Identifying the required glass-wares.
2. Understanding the oxidation, Diazotization, Stoichiometry, End point conditions and calculations.
3. Identifying the neutralization reaction, redox reaction.

Psychomotor skills :

1. Cleaning of glass-wares, weighing of chemicals and setting of experimental conditions.
2. Sequential addition of reagents during analysis.
3. Determining the end point and finding the mean burette reading.
4. Drawing the correct experimental diagram.

List of Experiments : [Minimum 12 experiments to be completed]

1. To prepare percent solution, normal solution and molar solutions.
2. To prepare solution of desired normality from the given standard solution.
3. To separate binary mixture of liquids by distillation.
4. To determine the rate constant of hydrolysis of methyl acetate.
5. To investigate the reaction between Potassium persulphate and Potassium iodide.
6. To determine the surface tension of given organic liquids by drop method.
7. To determine relative viscosity of organic liquids using Ostwald's viscometer.
8. To determine the amount of phthalic anhydride in the given solution.
9. To prepare nitro-benzene from benzene.
10. To check the pH of various solutions by pH meter/pH paper.
11. To prepare a sample of barium chromate.
12. To prepare a sample of sulphur colloid.
13. Separation of binary mixture by column chromatography/ paper chromatography.
14. To prepare a sample of methyl salicylate.
15. To prepare regenerated cellulose from cellulose waste.
16. To prepare alumina from potassium alum solution.

Learning Resources : Books :

Sr. No.	Author	Title	Publisher
1	I. L Finar	Organic Chemistry, Vol. I	ELBS & Laongman Groul Ltd.
2	Bahl & Tuli	Essentials of Physical Chemistry.	S Chand & Co.
3	J. D. Lee	Concise Inorganic Chemistry.	ELBS & Laongman Groul Ltd.
4	B. S Bahl & Arun Bahl	Text Book of organic Chemistry.	S. Chand & Co.

Course Name : Diploma in Surface Coating Technology

Course Code : SC

Semester : Second

Subject Title : Industrial Chemistry

Subject Code : 9621

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
03	--	03	03	80	20	50#	--	25@	175

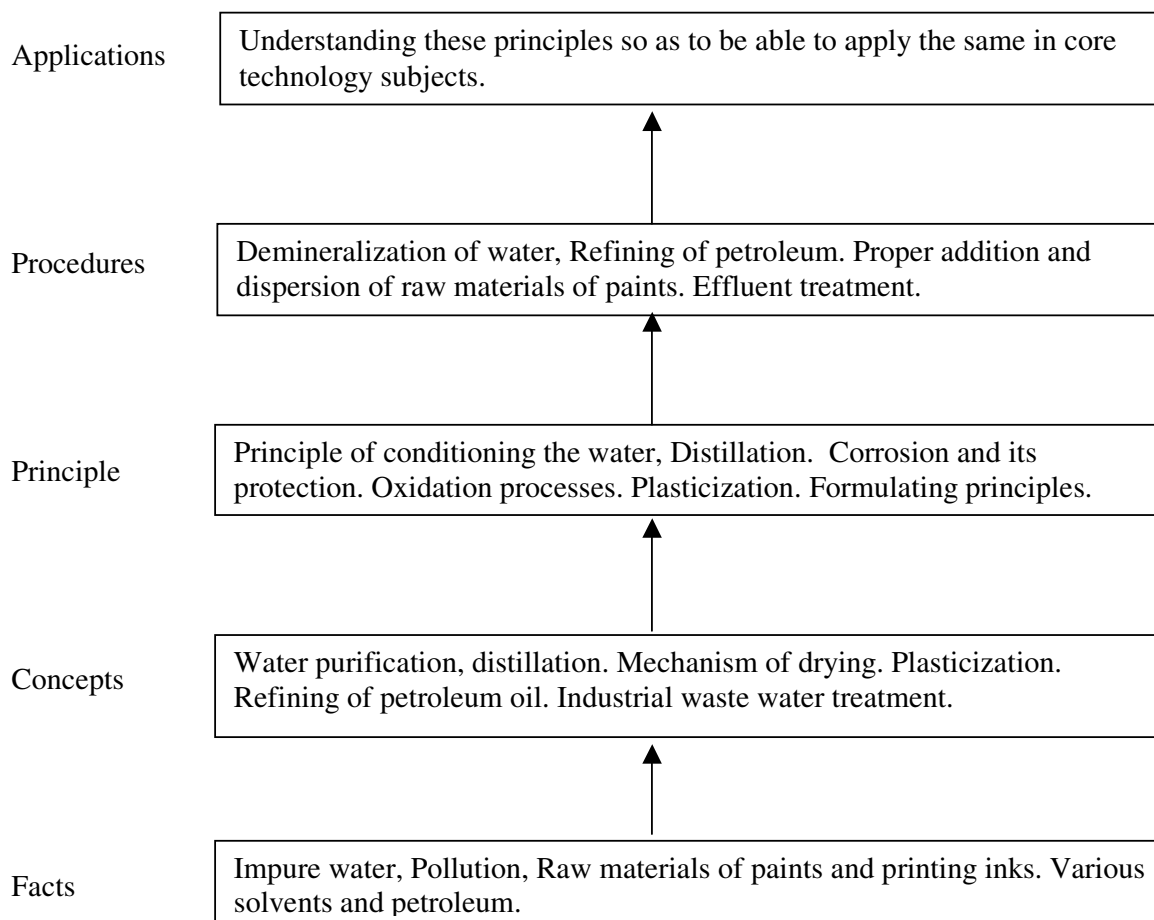
RATIONALE :

This subject will explain the industrial applications of raw materials used in Surface Coating industry such as thinners and solvents, plasticizers and driers. Besides, another important topic of sewage and industrial waste water treatment, factors responsible for pollution and the importance of environment protection will be dealt with.

OBJECTIVES : The students will be able to :

1. Identify various fractions of petroleum industry and their applications in paints.
2. Identify uses and applications of plasticizers and driers in paints.
3. Understand factors responsible for pollution and how to control it.

Learning Structure :



Contents : Theory :

Chapter	Name of the topic	Hours	Marks
1	Water Conditioning - Definition of conditioning, purification and softening. Methods of conditioning : cation – anion exchange resin, demineralization. Distillation process, precipitation methods, phosphate conditioning, silica, iron and oxygen removal. Municipal water purification. Conditioning of sea water. Sewage and industrial waste water treatment.	10	16
2	Petroleum Industry – Definition of petrol and petroleum. Petroleum stocks and their survey. Location of petroleum stocks. Composition of petroleum oil. Refining of petroleum oil. Cracking and reforming process. Knocking of petrol and anti-knocking reagents. Octane and cetane values. Natural gas and LPG.	10	16
3	Plasticizer & Driers – 3.1 Definition of esters and oils. Classification of plasticizer. Mechanism of plasticization. Internal and external plasticization. Glass transition temp. Uses of plasticizers in surface coatings. Marks : 08 3.2 Definitions of soaps and organo metallic soaps. Various metals and acids used in driers. Mechanism of drying. Preparation of driers. Uses of driers in Surface Coatings. Marks : 08	10	16
4	Surface Coating Industry – 4.1 Introduction to Paints. Constituents of paints and their functions. Types of paints. Requirements of a good paint. Failure of paint film and its prevention. Marks : 12 4.2 Printing inks – their raw materials. Formulations of paints and printing inks. Difference between these two surface coatings. Marks : 04	10	16
5	Environmental Science – Environment and ecology- Environment education and objective. Carbon, oxygen and nitrogen cycle on the planet. Flora and fauna. Air pollution- Factors responsible for air pollution. Control of air pollution. Water pollution. Industrial environment. Industrial pollutants. Environment protection.	08	16
Total		48	80

Practical :**Skills : Intellectual skills :**

1. Identify required glass-wares.
2. Selection of ingredients.
3. Formulations and calculations.

Psychomotor skills :

1. Cleaning of glass-wares and measurement of raw materials.
2. Dispersion of ingredients.
3. Setting of experimental conditions.
4. Handling of corrosive and hazardous chemicals.

List of Experiments : [Minimum 12 experiments to be completed]

1. To determine hardness in sample of hard water.
2. To determine the chloride content in the given sample of water.
3. To determine the ester value of the given sample of plasticizer.
4. To test the sample of lubricating oil.
5. To determine flash point/ fire point of petrol/ diesel/ solvents.
6. To prepare a sample of organo-metallic soap.
7. To determine metal content in the given sample of driers.
8. To determine acidity of given sample of plasticizer.
9. To determine percent CrO_3 in Zinc chromate as per IS : 43.
10. To determine percent iron as Fe_2O_3 in red-oxide pigment.
11. To determine pigment percentage in red-oxide primer.
12. To determine percent zinc in zinc oxide pigment as per IS : 35.
13. To prepare a sample of cement paint.
14. To prepare a sample of enamel paint.
15. To test the physical properties of printing inks such as colour, length, flow, tack, fineness of grind etc.

Learning Resources : Books :

Sr. No.	Author	Title	Publisher
1	R N Shreve	Chemical Process Industries.	Mc Graw Hill Book Co.
2	G P A Turner	Introduction to Paint Chemistry.	Chapman & Hall.
3	H F Perry	Chemical Engineer's Hand Book	Mc Graw Hill Inter.
4	V R Gowariker & N V Vishwanathan	Polymer Science	New Age International.

Course Name : Diploma in Surface Coating Technology

Course Code : SC

Semester : Second

Subject Title : Technology of Resins-II

Subject Code : 9622

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
03	--	03	03	80	20	--	--	25@	125

RATIONALE :

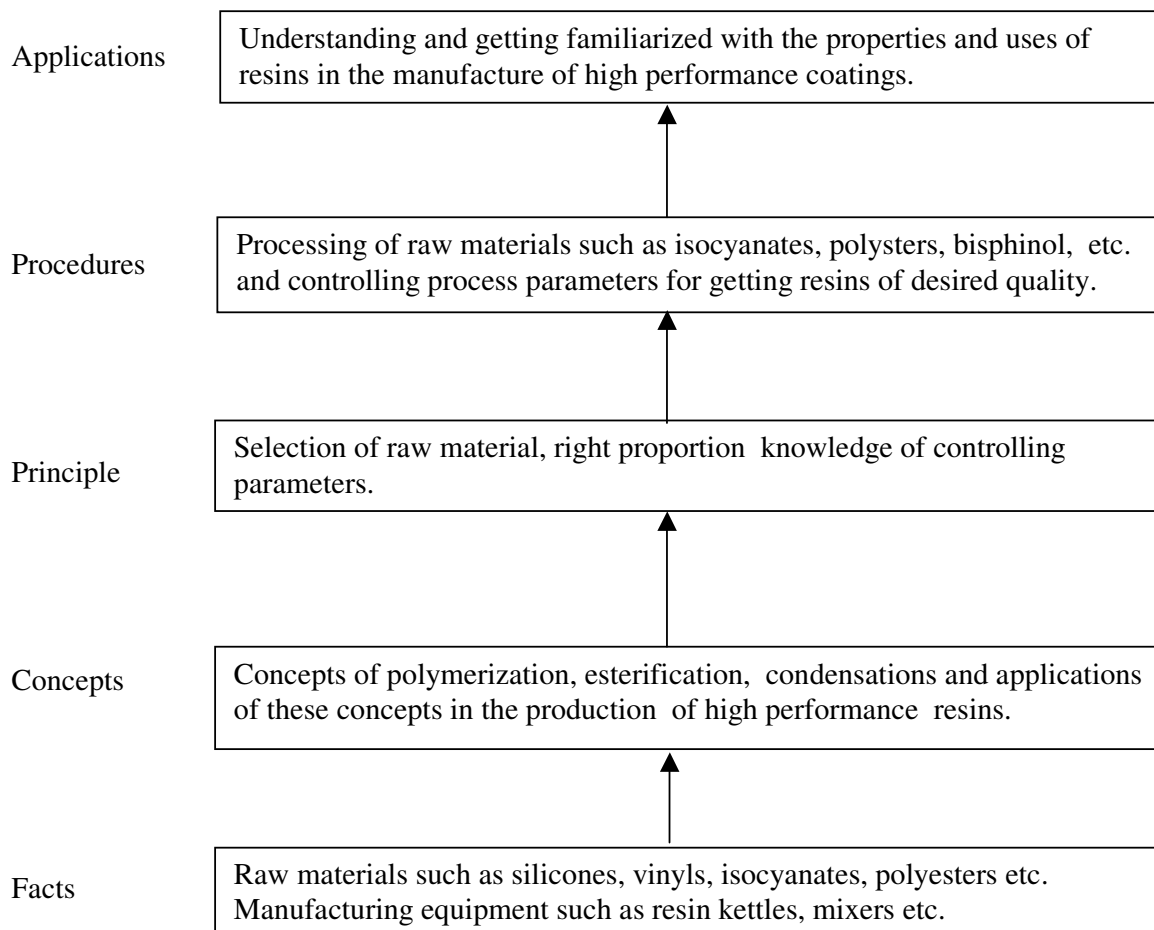
This subject will explain high performance resins such as epoxy, polyurethane, acrylics etc, their chemistry, manufacturing processes and properties. The subject will explain the role of these resins in industrial coatings for their decorative and protective properties.

OBJECTIVES :

The students will be able to :

1. Identify types of resins used in industrial coatings.
2. describe chemistry, manufacturing processes and properties of resins.
3. identify application areas of resins in coatings.

Learning Structure:



Contents : Theory :

Chapter	Name of the topic	Hours.	Marks
1	Polyamide Resins – Chemistry, Manufacturing methods, Properties and uses. Marks : 12	08	12
2	Polyurethane Resins – 2.1 Classification, Raw materials, Chemistry, Manufacturing methods, Properties and uses. Marks : 08 2.2 Modifications of Polyurethane such as P.U. Ester, P.U. adduct. Marks : 08	09	16
3	Vinyl & Acrylic Resins – 3.1 Raw materials, their properties and uses. Marks : 06 3.2 Processes such as : bulk polymerization, solution polymerization, Emulsion polymerization. Marks : 04 3.3 Thermoplastic and Thermosetting acrylics. Application areas of acrylics. Marks : 06	12	16
4	Epoxy Resins – 4.1 Raw materials, Chemistry, Manufacturing methods. Marks : 08 4.2 Curing agents for epoxies such as amines, amides, phenols, esters, amino, isocyanates. Marks : 04 4.3 Applications of epoxy resins. Marks : 08	09	20
5	Silicone Resins – 5.1 Raw materials, Chemistry, Manufacturing methods. Marks : 04 5.2 Modifications, Properties and uses. Role of organic radicals in their preparation. Marks : 08 5.3 Chlorinated rubber- Properties and uses. Marks : 04	10	16
Total		48	80

Practical :**Skills : Intellectual skills :**

1. Understanding the properties of raw materials.
2. Selection of appropriate test methods/instruments.
3. Understanding correct interpretation of results.

Psychomotor skills :

1. Handling and weighing of raw materials.
2. Setting of apparatus and handling of equipment.
3. Handling of hazardous chemicals.

List of Experiments : [Minimum 12 experiments to be completed]

1. To determine the amine value of Polyamines.
2. To determine the amine value of Polyamides.
3. To determine the percent NCO content of Polyurethane.
4. To test the various properties of Polyurethane resins.
5. To determine hydroxyl value of Acrylic resins.
6. To determine the acid value of Acrylic resins.
7. To determine the stability of emulsion against acidic, basic solutions.
8. To determine the epoxy equivalent of epoxy resins.
9. To determine hydroxyl value of Epoxy resin.
10. To test the various properties of Epoxy resins.
11. To determine heat stability of Silicone resins.
12. To test the compatibility of Silicone resin with other resins.
13. To compare the properties of Epoxy and PU resins.
14. To determine the tolerance ratio of solvent for the sample of lacquer.
15. To determine pot life of two-pack system, namely epoxy-hardner.

Learning Resources : Books :

Sr. No.	Author	Title	Publisher
1	P Parsons	Surface Coatings, Vol. I	Chapman & Hall.
2	Dr. P Oldring & G Haywrd	Resins for Surface Coatings, Vol. I, II, III.	Sita Technology, London
3	O C C A	Convertible Coatings, Part III	Chapman & Hall
4	O C C A	Surface Coatings, Vol. I	Tafe Educatiobal Books, Australia.
5	F W Billmeyer, Jr.	Text Book of PolymerScience.	John Willey & Sons.
6	W M Morgan	Outline of Paint Technology.	S K Jain for CBS Publishers.
7	V R Gowarikar	Polymer Science	NewAje International (P) Ltd

Course Name : Diploma in Surface Coating Technology

Course Code : SC

Semester : Second

Subject Title : Technology of Pigment- II

Subject Code : 9623

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
03	--	03	03	80	20	--	--	25@	125

RATIONALE :

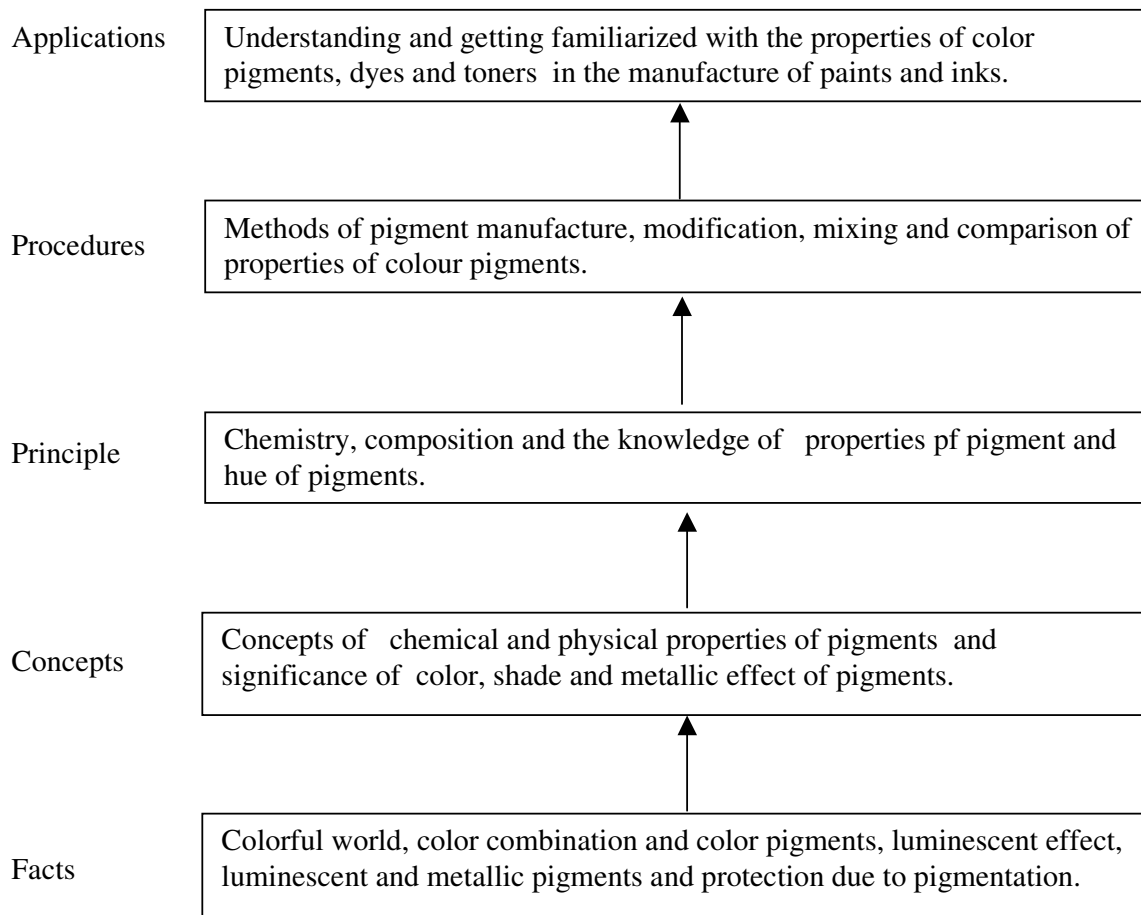
This subject will give knowledge about various coloured pigments and their role in paints. This subject will deal with protective and decorative pigments and dyes. The subject includes pigments, their properties and uses and covers the important aspects of Yellow, Red, Orange, Blue and Green Pigments. Besides, decorative and metallic pigments and their role in surface coatings is covered.

OBJECTIVES :

The students will be able to :

1. Describe various colour pigments.
2. Describe properties of pigments.
3. Sselect pigments for color matching.

Learning Structure:



Contents : Theory :

Chapter	Name of the topic	Hours	Marks
1	Yellow Pigments – 1.1 Properties and uses of : Benzedene Yellows, Hansas. Cadmium Colours. Zinc Chromes, Barium Chromates, Lead Chromes. Marks : 12 1.2 Iron Oxides. Marks : 04	08	16
2	Orange & Red Pigments – Properties and uses of : Toluidine Red, Signal Red. Red Lake C. Lithol Red, Rubine Toners, Permanent Red 2 B. Quinacridone Red.	10	16
3	Blue & Green Pigments – 3.1 Manufacturing, Properties and uses of : Phthalocyanine Blue, Phthalocyanine Green. Marks : 08 3.2 Properties and uses of : Prussian Blue.: Ultramarine Blue (UMB). Marks : 06 3.3 Manufacturing, Properties and uses of : Chrome Green, Chrome Oxide Green. Marks : 06	10	20
4	Decorative Pigments – 4.1 Introduction to fluorescence, phosphoresce and pearlescence. Fluorescent, Phosphorescent and Pearlescent pigments – Properties & uses. Marks : 08 4.2 Manufacturing, Properties and uses of Aluminium and Copper Pigments. Marks : 08	10	16
5	Dyes & Toners - 5.1 Basic knowledge about dyes and toners. Manufacturing, Properties and uses of PMA and PTMA toners (Pink, violet and blue) Marks : 06 5.2 Basic concept of colour – Primary and Secondary colours. Additive and subtractive colour mixing. Complementary colours. Colour perception and colour blindness. Marks : 06	10	12
Total		48	80

Practical :**Skills : Intellectual skills :**

1. Understanding color and matching the standard shade.
2. Identifying glass-wares and raw materials.
3. Controlling the parameters during preparations.
4. Calculations of oil absorption values of Pigments.

Psychomotor skills :

1. Weighing and handling of chemicals
2. Sequential addition of raw materials during preparations.
3. Comparing properties by taking draw downs.
4. Mixing of Pigment and oil by spatula rub-out method for oil absorption.

List of Experiments : [Minimum 12 experiments to be completed]

1. To determine colour, particle size, particle shape and texture of colour pigments.
2. To determine Undertone and Mass tone of colour pigments by taking draw down.
3. To determine Oil absorption value of colour pigments.
4. To determine Bulk density of colour pigments.
5. To determine Specific gravity of colour pigments.
6. To determine Resistance to acid/alkali of pigments and pH of water extract.
7. To determine Resistance to heat of pigments.
8. To determine tinting strength of colour pigments.
9. To test bleeding tendency of colour pigments in various solvents.
10. To prepare Chrome Green pigment in laboratory.
11. To prepare Middle chrome pigment in laboratory.
12. To prepare a sample of paint from pigments and vehicle.
13. To match shade : Blue & Green.
14. To match shade : yellow & Red.
15. To match shade: Violet & Grey.

Learning Resources :**Books :**

Sr. No.	Author	Title	Publisher
1	T C Patton	Pigment Hand Book, Vol. I & II	John Wiley & Sons.
2	W M Morgan	Outlines of Paint Technology	Charls Griffin & Co.Ltd.
3	Gunter Buxbaun	Industrial Inorganic Pigments	VCH Publishers
4	W Herbst & K Hunger	Industrial Organic Pigments	VCH Publishers.
5	Swaraj Paul	Surface Coatings	John Wiley & Sons.
6	H F Payne	Organic Coatings	John Willey & Sons.
7	K M Shah	Hand Book of Synthetic Dyes & Pigments	Multitech Publishing, Mumbai.

Course Name : Diploma in Surface Coating Technology

Course Code : SC

Semester : Second

Subject Title : Development of Life Skills-I

Subject Code : --

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
02	--	02	--	--	--	--	25#	25@	50

RATIONALE:

In today's competitive world, the nature of organizations is changing at very rapid speed. In this situation the responsibility of diploma holder is not unique. He will be a part of a team in the organization. As such the individual skills are not sufficient to work at his best. This subject will develop the student as an effective member of the team. It will develop the abilities and skills to perform at highest degree of quality as an individual as well as a member of core group or team. Such skills will enhance his capabilities in the field of searching, assimilating information, managing the given task, handling people effectively, solving challenging problems.

The Subject Is Classified Under Human Science.

OBJECTIVES:

The students will be able to:

1. Develop reading skills.
2. Use techniques of acquisition of information from various sources.
3. Draw the notes from the text for better learning.
4. Apply the techniques of enhancing the memory power.
5. Develop assertive skills.
6. Prepare report on industrial visit.
7. Apply techniques of effective time management.
8. Set the goal for personal development.
9. Enhance creativity skills.
10. Develop good habits to overcome stress.
11. Face problems with confidence.

Contents: Theory

Chapter	Name of the topic	Hours
1	Importance of DLS, Introduction to subject, importance in present context ,application	02
2	Information Search Information source –Primary, secondary, tertiary Print and non - print , documentary, Electronic Information center, Library , exhibition, Government Departments. Internet Information search – Process of searching, collection of data –questionnaire taking Interview , observation method.	04
3	Written communication Method of note taking Report writing –Concept, types and format.	02
4	Self Analysis Understanding self— Attitude, aptitude, assertiveness, self esteem, Confidence buildings. Concept of motivation.	04
5	Self Development Stress Management –Concept, causes, effects , remedies to avoid/minimize stress. Health Management – Importance, dietary guidelines and exercises. Time management- Importance, Process of time planning, Urgent Vs importance, Factors leading to time loss and ways to handle it ,Tips for effective time management. Emotion-Concept, types, controlling, emotional intelligence. Creativity-Concept, factors enhancing creativity. Goal setting – Concept, setting smart goal.	14
6	Study habits Ways to enhance memory and concentration. Developing reading skill. Organization of knowledge, Model and methods of learning.	06
Total		32

List of assignments:

The Term Work will consist of following assignments.

- 1) Library search:-
Visit your Institute's Library and enlist the books available on the topic given by your teacher. Prepare a bibliography consisting of name of the author, title of the book, publication and place of publication.
- 2) Enlist the magazines, periodicals and journals being available in your library. Select any one of them and write down its content. **Choose a topic for presentation.**
- 3) Attend a seminar or a guest lecture, listen to it carefully and note down the important points and prepare a report of the same.
- 4) Visit to any one place like historical/office/farms/development sites etc and gather information through observation, print resources and interviewing the people.
- 5) Prepare your individual time table for a week -
 - a) List down your daily activities.
 - b) Decide priorities to be given according to the urgency and importance of the activities.
 - c) Find out your time wasters and mention the corrective measures.
- 6) Keep a diary for your individual indicating- planning of time, daily transactions, collection of good thoughts, important data, etc
- 7) Find out the causes of your stress that leads tension or frustration .Provide the ways to avoid them or to reduce them.
- 8) Undergo the demonstration on yoga and meditation and practice it. Write your own views, feeling and experiences on it.

NOTE:- THESE ARE THE SUGGESTED ASSIGNMENT FOR GUIDE LINES TO THE SUBJECT TEACHER. HOWEVER THE SUBJECT TEACHERS CAN SELECT ,DESIGN ANY ASSIGNMENT RELEVANT TO THE TOPIC, KEEPING IN MIND THE OBJECTIVES OF THIS SUBJECT.

Learning Resources:**Books :**

Sr. No	Author	Title of the book	Publisher
1	Marshall Cooks	Adams Time management	Viva Books
2	E.H. Mc Grath , S.J.	Basic Managerial Skills for All	Pretice Hall of India, Pvt Ltd
3	Allen Pease	Body Language	Sudha Publications Pvt. Ltd.
4	Lowe and Phil	Creativity and problem solving	Kogan Page (I) P Ltd
5	Adair, J	Decision making & Problem Solving	Orient Longman
6	Bishop , Sue	Develop Your Assertiveness	Kogan Page India
7	Marion E Haynes	Make Every Minute Count	Kogan page India
8	Pearson Education Asia	Organizational Behavior	Tata McGraw Hill
9	Michael Hatton (Canada – India Project)	Presentation Skills	ISTE New Delhi
10	--	Stress Management Through Yoga and Meditation	Sterling Publisher Pvt Ltd .
11	Richard Hale ,Peter Whilom	Target setting and Goal Achievement	Kogan page India
11	Chakravarty, Ajanta	Time management	Rupa and Company
12	Harding ham .A	Working in Teams	Orient Longman

Internet Assistance:

- 1) <http://www.mindtools.com>
- 2) <http://www.stress.org>
- 3) <http://www.ethics.com>
- 4) <http://www.coopcomm.org/workbook.htm>
- 5) <http://www.mapfornonprofits.org/>
- 6) <http://www.learningmeditation.com> <http://bbc.co.uk/learning/courses/>
- 7) <http://eqi.org/>
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