

**CURRICULUM  
FOR  
SECOND SEMESTER  
OF  
THREE-YEAR  
DIPLOMA COURSES  
IN  
POLYTECHNICS  
OF  
UNION TERRITORY  
OF  
JAMMU AND KASHMIR**

**CURRICULUM**

**FOR**

**SECOND SEMESTER**

**DIPLOMA IN**

**OFFICE MANAGEMENT AND**

**COMPUTER APPLICATIONS**

**(SUBJECT STUDY SCHEME : 2<sup>nd</sup> Sem OFFICE MANAGEMENT AND COMPUTER APPLICATIONS)**

Course Code	Subjects	Time in Hours				CREDITS		
		Theor y	Tutorial	Practical	Total	Theory	Practical	Total
HS203	Language and Communication Skill-II	3	-----	--	3	3	---	3
HS204	Language and Communication Skill-II LAB	----	----	2	2	----	1	1
OMPC201	Business Correspondence -II	5	-----	-----	5	5	---	5
OMPC202	Desktop Publishing – II	-----	-----	6	6	-----	3	3
OMPC203	Basics of Stenography	----	----	6	6	---	3	3
OMPC204	Office Management-II	4	--	---	4	4	---	4
OMPC205	Office Management-II LAB	---	---	2	2	---	1	1
BS211	Environmental Science	2	--	--	2	2	--	2
	Total	14	-----	16	30	14	8	22

<b>PROGRAM THREE YEAR DIPLOMA IN OFFICE MANAGEMENT AND COMPUTER APPLICATIONS</b>	
Course Code : <b>HS 203</b>	Course Title: <b>Language &amp; Communication Skills – II</b>
Semester: <b>2<sup>ND</sup></b>	Credits: <b>03</b>
Periods per Week: <b>3 (L: 3 T: 0 P:0)</b>	

**COURSE OBJECTIVE:**

The objective of this course is to develop effective communication skills and also to inculcate soft skills among the students in professional and inter-personal communications facilitating their all-round development of personality. At the end of the course, the student will be able to develop comprehension skills, Professional etiquettes; improve vocabulary; use proper grammar; acquire writing skills and explore various aspects of soft skills.

**COURSE CONTENT****Unit 1: Short stories and Poetry (08hrs)**

- 1.1 Section A: - Short Stories
  - Three Questions : Leo Tolstoy
  - The last leaf : O Henry
- 1.2. Section B:-Poems
  - The Psalm of life : H.W. Longfellow
  - Say Not Struggle Naught Availeth : A.H. Clough

**Unit 2: Essentials of Grammar (10hrs)**

- 2.1. Basics of grammar (Parts of speech)
- 2.2. Subject -Verb Agreement
- 2.3. Tenses
- 2.4. Voice (Active and Passive)
- 2.5. One word substitution
- 2.6. Correct /Incorrect sentences

**Unit 3. Techniques of Writing. (10hrs)**

- 3.1. Comprehension of an Unseen Passage
- 3.2. Paragraph Writing
- 3.3. Circulars
- 3.4. Memos

**Unit 4: Soft Skills (12hrs)**

- 4.1. Intrapersonal and Interpersonal skills - Meaning and Importance.
- 4.2. Self-Management Skills

- Goal setting- Meaning, Importance, types and ways to achieve goals.
  - Time Management- Meaning, benefits and strategies to improve time management.
  - Self-motivation -Meaning and Importance.
  - Stress management -.Meaning, Causes and Techniques of stress management.
  - Positive Thinking
  - Problem-solving- Meaning, Steps and importance.
  - Decision Making - Meaning, process/stages and Importance of decision making
- 4.3. Team work and Leadership skills -Concept of Teams; Building effective teams; Concept of Leadership and honing Leadership skills.

### **Unit 5: Etiquettes**

**(08hrs)**

- 5.1. Etiquettes - Meaning, Types and Importance
- 5.2. Professional etiquettes- ABC (Appearance, Behavior, Communication) of Professional Etiquettes, Importance of Professional etiquettes.
- Office Etiquette - Meaning, Importance and Tips.
  - Meeting etiquettes - Meaning, Importance and Tips.
  - Telephone etiquettes.

### **COURSE OUTCOME**

#### **After the completion of the course the student will be able to:**

##### Unit 1:

- Read, analyze, and interpret works of literature.
- Make themselves proficient in literary contexts.
- Learn different words in the text which in turn will enhance their language (Vocabulary).

##### Unit 2:

- Identify the different parts of speech and their usage in the sentence.
- Know about the application of various grammatical items like Subject-Verb Agreement, Tenses, and Voice etc.
- Enrich his/her vocabulary and enhance grammar accuracy.

##### Unit 3:

- Comprehend the passage and able to answer the linked questions.
- Plan, organize and present ideas coherently on a given topic.
- Compose circulars and memos which in turn will enhance their writing skill.

##### Unit 4:

- Set goals, manage time and stress, solve problems and organize oneself effectively.
- Know about self-motivation and its importance.
- be a team player and develop leadership skills.

##### Unit 5:

- Demonstrate personal and professional etiquettes.

### **RECOMMENDED BOOKS:**

1. Kulbhushan Kumar, " Effective Communication Skills", Khanna Publishing House, New Delhi (Revised Edition 2018)
2. M. Ashraf Rizvi, "Effective Technical Communication". Mc-Graw Hill: Delhi, 2002.

3. Sanjay Kumar and PushpLata, "Communication Skills "Oxford University Press, 2011
4. Meenakshi Raman &Sangeeta Sharma, "Technical Communication: Principle and Practice". New Delhi:OUP, 2011.
5. Francis Peter S.J.,"Soft Skills and Professional Communication"
6. K.R. Lakshminarayana& T. Murugavel, "Managing Soft Skills", Scitech Publications. 2009
7. NK Aggarwal and FT Wood, "English Grammar, Composition and Usage".Macmillan Publishers India Ltd; New Delhi.
8. Dr. Alex, "Soft skills"
9. Gopalaswamy Ramesh and MahadevanRamesh,"The Ace of Soft Skills: Attitude, Communication and Etiquette for Success". Pearson

### UNIT WISE TIME AND MARKS DISTRIBUTION

UNIT	TIME (Hrs)	MARKS (%age)
1	08	20
2	10	20
3	10	20
4	12	25
5	08	15
<b>TOTAL</b>	<b>48</b>	<b>100</b>

<b>PROGRAM THREE YEAR DIPLOMA IN PROGRAM THREE YEAR DIPLOMA IN OFFICE MANAGEMENT AND COMPUTER APPLICATIONS</b>	
Course Code : <b>HS204</b>	Course Title: <b>Language &amp; Communication Skills – II LAB</b>
Semester: <b>2<sup>ND</sup></b>	Credits: <b>01</b>
Periods per Week: <b>2 (L: 0 T: 0 P:2)</b>	

**COURSE OBJECTIVE:**

Language is the most commonly used medium of self-expression in all spheres of human life personal, social and professional. A student must have a fair knowledge of English language and skills to communicate effectively to handle the future jobs in industry. The objective of this course is to develop effective communication skills and also to inculcate soft skills among the students in professional and inter-personal communications facilitating their all-round development of personality. At the end of the course, the student will be able to develop comprehension skills, Professional etiquettes; improve vocabulary; use proper grammar; acquire writing skills and explore various aspects of soft skills. It is expected that each polytechnic will establish a communication skill laboratory for conducting practical's mentioned in the curriculum.

**LIST OF PRACTICALS:**

1. Ice breaking Activity and JAM session
2. Developing conversational ability - Describing yourself, Describing objects around you, Describing People.
3. Situational Dialogues- Role Play- Expressions in various situations- Self introduction and introducing others- Greetings- Taking Leave - Apologies- Requests etc.
4. Listening with Comprehension-Listening to recorded lectures, poems, interviews, speeches, documentaries etc. - Taking notes while listening
5. Professional etiquettes- Netiquette, Telephone Etiquette, Introduction and first impression, Business meeting etiquette, Dressing and Dinning Etiquette.
6. Reading articles from newspaper, magazines, journals etc.
7. Public speaking - Extempore and Impromptu Speech
8. Grammar - Words often misspelt - confused/ misused; Common errors in pronunciation; Idiomatic expressions.
9. Professional Skills- Drafting Job Application Letter, CV/ Resume; Interview skills.
10. Demonstrating the do's and don'ts of facing the interview.

<b>PROGRAM : THREE YEARS DIPLOMA PROGRAM IN OFFICE MANAGEMENT AND COMPUTER APPLICATIONS</b>	
<b>Course Code : OMPC201</b>	<b>Course Title: Business Correspondence-II</b>
<b>Semester : 2<sup>ND</sup></b>	<b>Credits: 5</b>
<b>Periods per week: 5 (L 5, T 0, P 0)</b>	

## **COURSE OBJECTIVE**

A diploma holder in Office Management and Computer Applications has to work in the different organizations. To handle his/her job well, knowledge about techniques of correspondence is a must. In fact he/she has to acquire the skills of effective correspondence as he/she has to manage the office and has to provide help to his/her seniors and chief executives.

## **COURSE CONTENT**

### **1. Sales Letters**

**(16hrs)**

- 1.1. Introduction of new product
- 1.2. Promotion of a product.
- 1.3. Publicity of business.
- 1.4. Special offers/discount etc.

### **2. Circulars**

**(10hrs)**

- 2.1. Change of address.
- 2.2. Opening of new branches.
- 2.3. Introduction of a partner.
- 2.4. Retirement of partner.

### **3. Official Correspondence**

**(20hrs)**

- 3.1. Introduction.
- 3.2. Noting in files
- 3.3. Official letters
- 3.4. Demi Official letters
- 3.5. Office Orders
- 3.6. Memorandum/memo letters
- 3.7. Notification
- 3.8. Endorsement
- 3.9. Inter departmental Communication.
- 3.10. Office Circulars

### **4. Bank Correspondence**

**(10hrs)**

- 4.1. Inquiry regarding opening of an account



- 4.2. Ask the bank to stop the payment
- 4.3. Advice of consignment
- 4.4. Overdraft facilities
- 4.5. Loss of cheque book
- 4.6. Transfer and standing instructions
- 4.7. Dishonor of cheques, Reasons, Letters from customers
- 4.8. Bank forms and Bank terms

## **5. Insurance letters**

**(10hrs)**

- 5.1. Introduction, letter inquiring about premium rate.
- 5.2. Reply from insurance company
- 5.3. Claims
- 5.4. Series of letter between insurer and insurance company regarding the settlement of claims.

## **COURSE OUTCOME**

After completion of the course the student will be able to:

- Draft different sales letters, circulars and official letters.
- Introduce, promote and publicize new product and give special offers on it.
- Correspond with banks and insurance companies

## **RECOMMENDED BOOKS**

1. Commercial Correspondence by Mazumdar
2. Essentials of Business Communication by Rajendra Pal and J.S.Ko-rlahali; sultan Chand and Sons, New Delhi.
3. A guide to Business Correspondence by A.N. Kapoor; Sultan Chand and Sons
4. Business Correspondence and Report Writing by R.C. Sharma and Krishan Mohan; Tata McGraw Hill, Reprint 1997 26
5. Manual of office Management and correspondence by B.N. Tandon, sultan Chand and Sons, New Delhi.
6. Business Communication by Sinha, Galgotia, New Delhi
7. Manual of commercial correspondence by Hume and Baley, Wheeler Publishing.
8. Modern Business correspondence by L.Gartside Pitman publication.
9. Principals and Practice of Commercial correspondence by L.F.Nelson and James Stephson, Wheeler publication
10. Business communication a problem solving approach by Ray W. Poe Rose Mary T. Fruenling, Mc Graw Hill Book and Company.

**UNIT WISE TIME AND MARKS DISTRIBUTION**

<b>UNIT</b>	<b>Time (Hrs)</b>	<b>Marks (%age)</b>
1	16	20
2	12	15
3	28	35
4	12	15
5	12	15
<b>Total</b>	<b>80</b>	<b>100</b>

<b>PROGRAM: THREE YEARS DIPLOMA PROGRAM IN OFFICE MANAGEMENT AND COMPUTER APPLICATIONS</b>	
<b>COURSE CODE:OMPC202</b>	<b>COURSE TITLE: Desktop Publishing-II</b>
<b>SEMESTER: 2<sup>ND</sup></b>	<b>CREDITS: 03</b>
<b>PERIODS PER WEEK :6 ( L 0: T 0: P 6)</b>	

**COURSE OBJECTIVE:**

The objective of the course is that a student is trained on publication softwares like Adobe PageMaker to create, edit, format different publication using Publication Software. The student learns to edit, manipulate and enhance graphics or images to improve their overall appearance using Adobe Photoshop. They will go through the application CorelDraw to edit vector graphics. The student will learn and experience to create works such as posters, flyers, brochures, magazines, newspapers, and books. They also learn one bilingual software to create publications or documents in regional language.

**COURSE CONTENTS:****1. Digitization of Documents (06hrs)**

- 1.1. Install and setup scanner and scan the documents and images.
- 1.2. Install scanner and driver.
- 1.3. Scan picture, line drawing and document and store it as a digital file.
- 1.4. Adjust different scanner properties.
- 1.5. Make Optical Character Recognition document.

**2. Adobe PageMaker (27hrs)**

- 2.1. Create, format and edit different publication using publication software Adobe PageMaker.
- 2.2. Familiarize with basic screen component of PageMaker.
- 2.3. Create, saving PageMaker document.
- 2.4. Identify tool box and practice different tools.
- 2.5. Formatting character and paragraph like changing in font style, size, tab stop, indent, leading, kerning, and tracking by using character view of control pallet within story layout.
- 2.6. Create a Table by using Table Editor.
- 2.7. Use colour palette and create, edit and remove colours from the palette.
- 2.8. Insert importable file within document and also establish a link.
- 2.9. Insert/ draw graphics, crop it and wrapping text around graphics.
- 2.10. Introduce master page and insert page number, column guide using master page.
- 2.11. Export a graphic/ text from PageMaker to other format.
- 2.12. Create a book containing table of contents, index, and page number.
- 2.13. Print the publication by choosing odd pages, even pages using laser printer.

**3. Adobe photoshop (20hrs)**

- 3.1. Create, format, edit and develop images using Adobe Photoshop software.

- 3.2. Configure Application software – Photoshop.
- 3.3. Identify interface, palettes and tool bars.
- 3.4. Create and edit bitmap images.
- 3.5. Crop and transform images by appropriate tools.
- 3.6. Retouch a damaged photograph by using layers.
- 3.7. Make multiple passport size photographs by using Action button.
- 3.8. Prepare a cut-out of a given photograph and change its background and colours.

**4. Corel Draw. (20hrs)**

- 4.1. Draw, edit, format and develop graphics design using Corel draw application software.
- 4.2. Configure Application software – Corel Draw
- 4.3. Identify interface, palettes and tool bars.
- 4.4. Draw an illustration/ sketch using different tools
- 4.5. Design the sketch of 'cup and plate.'
- 4.6. Design an advertisement using Artistic text and extrude tools.
- 4.7. Design the cover page of a given magazine.
- 4.8. Design a suitable logo for 'Skill Development.'
- 4.9. Print all the above work outcomes.

**5. Regional Software(Inpage /any hindi typing software) (11hrs)**

- 5.1. Create, edit and format different types of publication using bilingual software.
- 5.2. Configure and demonstrate toggle keys to:
- 5.3. Switch between scripts
- 5.4. Switch between keyboard overlays
- 5.5. Design an advertisement in any regional language script.
- 5.6. Print the above work outcome.

**6. Advertisement Project. (12hrs)**

- 6.1. Create a Media Item using learned tools viz,
  - 6.1.1. Adobe Page Maker
  - 6.1.2. Adobe Photoshop.
  - 6.1.3. Corel Draw
  - 6.1.4. Bilingual Software
- 6.2. Create electronic and print form of a Media Item.

**COURSE OUTCOME**

**After the completion of the course the student will be able to:**

**Unit-1**

- install, scan and make necessary changes in formats using scanner

**Unit-2**

- create a book, export created Publication & Print the publication.

**Unit-3**

- Create, edit and modify an element, retouch a damaged photograph & prepare a cut-out of a given photograph.

**Unit-4**

- create, edit and modify a vector graphics, reconstruct layout graphics, create logos & prepare print and e-Copy of media.

**Unit-5**

- use bilingual software to create ads and export it for pre-processing.

**Unit-6**

- print the publication/ document/ images/ graphics and publish it.

**RECOMMENDED BOOKS:**

1. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi
2. DTP Course Book, by Vishnu p. Singh, Asian Book
3. PageMaker 7.0 Training Guide by Shashank Jain, BPB Publication, New Delhi
4. Photoshop CS6 Training Guide by Satish Jain, BPB Publication, New Delhi
5. Corel Draw Training Guide by Satish Jain/M.Geetha, BPB Publication, New Delhi
6. Ebook: [https://www.bharatskills.gov.in/pdf/E\\_Books/DTPO2semEngTT.pdf](https://www.bharatskills.gov.in/pdf/E_Books/DTPO2semEngTT.pdf)

**UNIT WISE TIME AND MARKS DISTRIBUTION**

<b>UNIT</b>	<b>Time (Hrs)</b>	<b>Marks (%age)</b>
<b>1</b>	<b>06</b>	<b>08</b>
<b>2</b>	<b>27</b>	<b>27</b>
<b>3</b>	<b>20</b>	<b>20</b>
<b>4</b>	<b>20</b>	<b>20</b>
<b>5</b>	<b>11</b>	<b>10</b>
<b>6</b>	<b>12</b>	<b>15</b>
<b>Total</b>	<b>96</b>	<b>100</b>

<b>PROGRAM: THREE YEARS DIPLOMA PROGRAM IN OFFICE MANAGEMENT AND COMPUTER APPLICATIONS</b>	
<b>COURSE CODE: OMPC203</b>	<b>COURSE TITLE: Basics of Stenography</b>
<b>SEMESTER: 2<sup>ND</sup></b>	<b>CREDITS: 03</b>
<b>PERIODS PER WEEK: 6 (L 0: T 0: P 6)</b>	

**COURSE OBJECTIVE:-**

To make the students understand the concept of strokes so that secret message has limited unauthorized access.

**COURSE CONTENT:-****Unit 1: Introduction of Stenography**

- The Consonants
- Exponents
- Continuants
- Nasals
- Liquids
- Coalescent
- Aspirates

**Unit 2: The Vowels**

- Vowel Sounds
- Vowel Signs
- Vowel Places
- Value of Vowel Sign
- Vowel Preceding and Following Strokes

**Unit 3: Intervening vowel and Position**

- Intervening Vowel
- Position of Outline
- Grammalogues

**Unit 4: Alternative Signs for R and H**

- Consonant R
- Consonant H

**Unit 5: Diphthongs**

- Detailed Diphthongs
- Joined Diphthongs
- Triphones
- Abbreviated W

**Unit 6: Pharseography**

- Phrase
- Tick the
- Grammalogues

**COURSE OUTCOME:****After the completion of the course the student will be able**

- Know basic concept of different strokes.
- Learn vowel with sound and placing
- write alternative forms of R and H and phrases

**RECOMMENDED BOOKS:**

1. Shorthand book by Pitman

**UNIT WISE MARKS DISTRIBUTION**

<b>UNIT</b>	<b>Marks (%age)</b>
1	25
2	20
3	15
4	10
5	20
6	10
<b>Total</b>	<b>100</b>

<b>PROGRAM: THREE YEARS DIPLOMA PROGRAM IN OFFICE MANAGEMENT AND COMPUTER APPLICATIONS</b>	
<b>COURSE CODE: OMPC204</b>	<b>COURSE TITLE: Office Management-II</b>
<b>SEMESTER: 2<sup>ND</sup></b>	<b>CREDITS: 04</b>
<b>PERIODS PER WEEK: 4 (L 4: T 0: P 0)</b>	

**COURSE OBJECTIVE:**

To make the students understand the concept and principles of office method and procedures and develop skills in performing various office-operations. This subject on office management aims at making the students well conversant with services provided by a modern office and help them to perform efficiently and effectively.

**COURSE CONTENTS:****UNIT1: RECORD MANAGEMENT**

- 1.1 Meaning and Importance
- 1.2 Filing and filing equipment
- 1.3 Record retention

**UNIT 2: OFFICE MANUAL AND REPORT**

- 2.1 Introduction need and source of manual
- 2.2 Types, Advantages of manual
- 2.3 Introduction, function, classification of report
- 2.4 Basic principle of writing report
- 2.5 Specimen of report

**UNIT 3: OFFICE PERSONNEL RELATION AND WELFARE**

- 3.1 Human relation in office management, employee's communication with method
- 3.2 Moral, staff welfare, safety arrangements, health and grievance of employees
- 3.3 Professional ethics and principles

**UNIT 4: QUOTATION /Tender/Work Order**

- 4.1 Drafting of quotation
- 4.2 Tender notice
- 4.3 Work estimate /order

**UNIT 5: E –OFFICE**

- 5.1 E-File
- 5.2 PIS (Personnel Information System)
- 5.3 Payroll

**COURSE OUTCOME:**

**After the completion of the course the student will be able to**

- Keep record in office, write manuals and write reports



- **Make inter-intra relations with basic ethics.**
- **draft a quotation , tender notice , work/estimation order**
- **work on eoffice.**

### **RECOMMENDED BOOKS:**

1. Office Management by Shashi Gupta and Sushil Nayyar, Kalyani Publications.
2. Office Management by P.K Gupta.
3. Office Management by Ghosh and Agarwal.
4. Office Management by Gupta, Bansal, Jain, Malik.
5. Office Management and practices by R. KSharma, Shashi Kr. Gupta and Sushil Nayyar

### **UNIT WISE TIME AND MARKS DISTRIBUTION**

<b>UNIT</b>	<b>Time (Hrs)</b>	<b>Marks (%age)</b>
1	10	15
2	14	22
3	16	25
4	10	15
5	14	23
<b>Total</b>	<b>64</b>	<b>100</b>

<b>PROGRAM: THREE YEARS DIPLOMA PROGRAM IN OFFICE MANAGEMENT AND COMPUTER APPLICATIONS</b>	
<b>COURSE CODE: OMPC205</b>	<b>COURSE TITLE: Office Management-II LAB</b>
<b>SEMESTER: 2<sup>ND</sup></b>	<b>CREDITS: 01</b>
<b>PERIODS PER WEEK: 2 (L 0: T 0: P 2)</b>	

**COURSE OBJECTIVE:**

The objective of the course is that the student implements the knowledge of Theoretical aspects of the Office Management & Procedures by doing/performing the practical work.

**LIST OF PRACTICALS:**

1. How to do filing in office.
2. Manual and report writing.
3. Methods of communication both oral and written used in office.
4. Drafting of Quotation and estimation.
5. Payroll, PIS (Personnel Information System), e-file

<b>PROGRAM: THREE YEARS DIPLOMA PROGRAMME IN OFFICE MANAGEMENT AND COMPUTER APPLICATIONS</b>	
Course Code: <b>BS211</b>	Course Title: ENVIRONMENTAL SCIENCE
Semester: 2 <sup>nd</sup>	Credits: 2
Periods Per Week: <b>2(L: 2, T: 0, P:0)</b>	

### **COURSE OBJECTIVE**

The three main goals of environmental science are: to learn how the natural world works, to understand how humans interact with the environment, and to find ways to deal with environmental problems and live more sustainably.

### **COURSE CONTENT**

#### **1. Ecosystem**

- 1.1 Structure of ecosystem, Biotic & Abiotic components
- 1.2 Food chain and food web
- 1.3 Aquatic (Lentic and Lotic) and terrestrial ecosystem
- 1.4 Carbon, Nitrogen, Sulphur, Phosphorus cycle.
- 1.5 Global warming -Causes, effects, process, Green House Effect, Ozone depletion

#### **2. Air and Noise Pollution**

- 2.1 Definition of pollution and pollutant, Natural and manmade sources of air pollution
- 2.2 Air Pollutants: Types, Particulate Pollutants: Effects and control
- 2.3 Gaseous Pollution Control: Absorber, Catalytic Converter, Effects of air pollution due to Refrigerants, I.C., Boiler
- 2.4 Noise pollution: sources of pollution, measurement of pollution level, Effects of Noise pollution, Noise pollution (Regulation and Control) Rules.

#### **3. Water and Soil Pollution**

- 3.1 Sources of water pollution, Types of water pollutants, Characteristics of water pollutants Turbidity, pH, total suspended solids, total solids BOD and COD: Definition, calculation
- 3.2 Waste Water Treatment: Primary methods: sedimentation, froth floatation, Secondary methods: Activated sludge treatment, Trickling filter, Bioreactor, Tertiary Method: Membrane separation technology, RO (reverse osmosis)
- 3.3 Causes, Effects and Preventive measures of Soil Pollution: Causes-Excessive use of Fertilizers, Pesticides and Insecticides, Irrigation, E-Waste.

#### **4. Solid Waste Management, ISO 14000 and Environmental Management**

- 4.1 Solid waste generation- Sources and characteristics of: Municipal solid waste, E-waste, biomedical waste.
- 4.2 Metallic wastes and Non-Metallic wastes (lubricants, plastics, rubber) from industries.
- 4.3 Collection and disposal: MSW (3R, principles, energy recovery, sanitary landfill), Hazardous waste
- 4.4 Air quality act 2004, air pollution control act 1981 and water pollution and control act 1996.
- 4.5 Structure and role of Central and state pollution control board.
- 4.6 Concept of Carbon Credit, Carbon Footprint.
- 4.7 ISO14000: Implementation in industries, Benefits.

### COURSE OUTCOME

After completion of the course the student be able to:

- Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving.
- Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.
- work and produce most efficient, economical and eco-friendly finished products.
- Solve various engineering problems applying ecosystem to produce eco – friendly products.
- Use relevant air and noise control method to solve domestic and industrial problems.
- Use relevant water and soil control method to solve domestic and industrial problems.
- Solve local solid and e-waste problems.

### RECOMMENDED BOOKS

1. S.C. Sharma & M.P. Poonia, Environmental Studies, Khanna Publishing House, New Delhi
2. Arceivala, Soli Asolekar, Shyam, Waste Water Treatment for Pollution Control and Reuse, Mc-Graw Hill Education India Pvt. Ltd., New York, 2007, ISBN:978-07-062099-
3. Nazaroff, William, Cohen, Lisa, Environmental Engineering Science, Willy, New York, 2000
4. O.P. Gupta, Elements of Environmental Pollution Control, Khanna Publishing House, New Delhi

### UNIT WISE TIME AND MARKS DISTRIBUTION

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	06	16
2	08	20
3	08	24
4	10	40
<b>Total</b>	<b>32</b>	<b>100</b>