

## GOVERNMENT POLYTECHNIC, PUNE

'120 – NEP' SCHEME

PROGRAMME	DIPLOMA IN DDGM
PROGRAMME CODE	08
COURSE TITLE	TEXTILE CHEMISTRY
COURSE CODE	SC21201
PREREQUISITE COURSE CODE & AND TITLE	

## I. LEARNING &amp; ASSESSMENT SCHEME

Course Code	Course Title	Course Type	Learning Scheme					Credits	Paper Duration Hrs.	Assessment Scheme										Total Marks
			Actual Contact Hrs./Week			SLH	NLH			Theory			Based on LL & TSL				Based on SL			
			CL	TL	LL					FA-TH	SA-TH	Total	Practical				SLA			
													Max	Min	Max	Min	Max	Min	Max	
SC21201	TEXTILE CHEMISTRY	SEC	03	-	02	-	05	2.5	3	30	70	100	40	25	10	25@	10	-	-	150

Total IKS Hrs for Term: Nil Hrs

**Abbreviations:** CL-Classroom Learning, TL-Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS – Indian Knowledge System, SLA- Self Learning Assessment

**Legends:** @-Internal Assessment, # - External Assessment,\*# - Online Examination,@\$ - Internal Online Examination

**Note:**

**FA-TH** represents an average of two class tests of 30 marks each conducted during the semester.

- If a candidate is not securing minimum passing marks in **FA-PR** (Formative Assessment - Practical) of any course, then the candidate shall be declared as '**Detained**' in that semester.
- If a candidate does not secure minimum passing marks in SLA (Self Learning Assessment) of any course, then the candidate shall be declared as '**fail**' and will have to repeat and resubmit SLA work.
- Notional learning hours** for the semester are **(CL + LL + TL + SL) hrs. \* 15 Weeks**
- 1 credit** is equivalent to **30 Notional hours**.
- \* Self-learning hours shall not be reflected in the Timetable.
- \*Self-learning includes micro-projects/assignments/other activities.

## II. RATIONALE:

Textile chemistry is a highly specialized field of chemistry that applies the principles of materials. It is an application of basic knowledge of chemistry to understand textile materials and the physical, and chemical properties of fibers by studying relevant chemical finishes, dyes, and bleaches to increase the quality of fiber. Students should be aware of various basic parameters for quality fibers. The study of impurities and hardness in water and methods for water softening will help the students make proper use of water. Chemistry in textiles plays a major and vital role in fiber/yarn/fabric processing, synthetic fiber manufacturing, and polymerization reactions.

## III. COURSE-LEVEL LEARNING OUTCOMES (CO'S)

Students will be able to achieve and demonstrate the following CO's on completion of course-based learning

- CO 1. Identify the physical and chemical properties of fibers.
- CO 2. Select chemical finishes for given fiber.
- CO3. Use dyes according to chemical properties.
- CO 4 Select relevant bleach in relevant industrial applications.
- CO 5. Use relevant water treatment processes to solve industrial problems.
- CO 6. Select relevant cleaning agent and stiffening agent for relevant fiber.

## IV. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT:

Sr. No	Theory Learning Outcomes (TLO'S) aligned to CO's.	Learning content mapped with TLO's.	Suggested Learning Pedagogies	Relevant COs
<b>UNIT-I TEXTILE FIBERS (CL Hrs-09, Marks-14 )</b>				
1.	<p><b>TLO 1.1</b> Define textile fiber.</p> <p><b>TLO 1.2</b> State characteristics of textile fibers.</p> <p><b>TLO 1.3</b> Classify fibers on the basis of their source.</p> <p><b>TLO 1.4</b> State physical and chemical properties of fibers.</p> <p><b>TLO 1.5</b> Compare fibers based on physical and chemical properties</p>	<p><b>1.1.</b> Definition of textile fibers, classification of fiber based on its source.</p> <p><b>1.2</b> Physical and chemical properties of cotton, linen, wool, silk, asbestos fiber, nylon, polyester, and acrylic.</p> <p><b>1.3</b> Physical properties: composition, structure, length, strength, moisture absorption, shrinkage, resiliency, heat conductivity</p> <p><b>1.4</b> Chemical properties: the action of acids, the action of alkalis, the action of bleach, and affinity for dyes</p>	Chalk and board Improved lecture, Tutorial Assignment Demonstration	CO1
<b>UNIT-II FINISHES (CL Hrs -08, Marks-10)</b>				
2	<p><b>TLO 2.1</b> Define finishes</p> <p><b>TLO 2.2</b> State purposes of finishing</p> <p><b>TLO2.3</b> Classify finishing based on textile processing.</p> <p><b>TLO 2.4</b> Describe the preliminary treatment involved in finishing</p> <p><b>TLO 2.5</b> Explain the effects of chemical finishes on fibers</p> <p><b>TLO 2.6</b> Distinguish between waterproof and water-repellent finishes.0</p>	<p><b>2.1</b> Definition of finishes, purposes of finishing.</p> <p><b>2.2</b> Classification of finishing based on textile processing (mechanical finishes, chemical finishes)</p> <p><b>2.3</b> Preliminary treatment involved finishing, bleaching, scouring, singeing, and desizing.</p> <p><b>2.4</b> Chemical finishes: mercerizing, Crease resistance, fire proof, and water proof, water repellent</p>	Chalk and board Improved lecture, Tutorial Assignment Demonstration	CO2
<b>UNIT-III DYES (CL Hrs-06, Marks-10)</b>				
3	<p><b>TLO 3.1</b> Define dyes</p> <p><b>TLO 3.2</b> Classify dyes according to their sources.</p> <p><b>TLO 3.3</b> List the types of dyes.</p> <p><b>TLO 3.4</b> Select relevant dyes for different fibers.</p> <p><b>TLO 3.5</b> Draw a process flow chart of dyeing materials.</p>	<p><b>3.1</b> Definition of dye, classification of dyes according to their sources: natural dyes, vegetable, animal, mineral. Artificial dyes: direct or salt, basic, acidic, Sulphur, mordant, vat, disperse, reactive, azoic dye. Ecofriendly dyes for textiles. Impact of dyes on environment&amp; way to reduce.</p> <p><b>3.2</b> Dyes applied to fiber classes-cellulose fiber, polyamide, polyester, acrylic mineral.</p> <p><b>3.3</b> Different processes and process flow chart showing dyeing textile material.</p>	Chalk and board Improved lecture, Tutorial Assignment Demonstration	CO3

<b>UNIT- IV BLEACHES AND THEIR SUITABILITY (CL Hrs-06, Marks-14)</b>				
4	<p><b>TLO 4.1</b> Define bleaching agent</p> <p><b>TLO 4.2</b> Classify bleaches</p> <p><b>TLO 4.3.</b>State Purposes of Bleaching</p> <p><b>TLO 4.4.</b> Describe the mechanism of bleaching</p> <p><b>TLO 4.5</b> Explain the action of oxidizing and reducing bleaches</p> <p><b>TLO 4.6</b> Describe over bleaching.</p>	<p><b>4.1</b> Definition of bleaching agent, classification of bleaches: oxidizing and reducing, Purposes of bleaching</p> <p><b>4.2</b> Mechanism of bleaching</p> <p><b>4.3</b>Types with examples Oxidizing bleaching: sodium hypo chloride, hydrogen peroxide, sodium perborate, potassium permanganate, sunlight</p> <p><b>4.4</b> Reducing bleaching: sodium sulphite, sodium Bisulphate, sodium thiosulphite,</p> <p><b>4.5</b> Over bleaching and precautions to avoid overbleaching.</p>	<p>Chalk and board</p> <p>Improved lecture,</p> <p>Tutorial</p> <p>Assignment</p> <p>Demonstration</p>	CO4
<b>UNIT –V WATER (CL Hrs-08, Marks-10)</b>				
5	<p><b>TLO 5.1</b> Define hard water and soft water</p> <p><b>TLO 5.2</b> State causes of hardness of water</p> <p><b>TLO 5.3</b> List types of hardness</p> <p><b>TLO 5.4</b> Explain the bad effects of hard water in dye and textile industries.</p> <p><b>TLO 5.5</b> Describe the method of removal of hardness by the zeolite process.</p> <p><b>TLO 5.6</b> Describe the method of removal of hardness by ion exchange method</p> <p><b>TLO 5.7</b> State applications of pH in engineering.</p> <p><b>TLO 5.7</b> Calculate the pH and pOH</p>	<p><b>5.1</b> Definition of hard water and soft water causes of hardness, types of hardness and difference between temporary and permanent.</p> <p><b>5.2</b> Bad effect of hard water in industries (textile, dye)</p> <p><b>5.3</b> Removal of hardness by lime soda method, zeolite, ion exchange method.</p> <p><b>5.4</b> Definition of pH &amp; pH scale, applications of pH in engineering. Numerical based on pH and pOH.</p>	<p>Chalk and board</p> <p>Improved lecture,</p> <p>Tutorial</p> <p>Assignment</p> <p>Demonstration</p>	CO5
<b>UNIT - VI MAINTAINANCE OF FIBRES (CL Hrs-08, Marks-12)</b>				
	<p><b>TLO6.1</b> List the components of soap and detergent.</p> <p><b>TLO 6.2</b> Describe the action of soap and detergent.</p> <p><b>TLO 6.3</b> Distinguish between soap and detergent.</p> <p><b>TLO 6.4</b> Describe the preparation of starch, gum, borax and gelatin solution.</p> <p><b>TLO 6.5</b> List types of blues.</p> <p><b>TLO 6.6</b> Explain the bluing process and classify stains.</p> <p><b>TLO 6.7</b> Select a proper method of stain removal for different fabrics.</p>	<p><b>6.1</b> Cleaning agent: soap- chemical composition, action of soap. Detergent: chemical composition, action of detergent Difference between soap and detergent</p> <p><b>6.2</b> Stiffening agent: starch, gum, gelatin, borax, Preparation and application of starch solution, (Boiling water starch, Cold water starch) gum, borax, and gelatin.</p> <p><b>6.3</b> Whitening agent: Laundry blues, types of blues, bluing process Stain removal- Classification of stains, methods of removal of stains from different fabrics</p>	<p>Chalk and board</p> <p>Improved lecture,</p> <p>Tutorial</p> <p>Assignment</p> <p>Demonstration</p>	CO6

## V. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL/TUTORIAL EXPERIENCES.

Sr. No	Practical/Tutorial/Laboratory Learning Outcome (LLO)	Laboratory Experiment / Practical Titles /Tutorial Titles	Number of hrs.	Relevant COs
1	<b>LLO 1.</b> Determine longitudinal and cross sections of fiber (cotton, linen wool, silk nylon, polyester, and acrylic) by using pick glass.	Determination of longitudinal and cross sections of fiber (cotton, linen wool, silk nylon, polyester, and acrylic) by using pick glass.	2	CO1
2	<b>LLO 2.</b> Compare characteristics of fibers (cotton, linen wool silk nylon, polyester, and acrylic) by the burning test of fibers in flame	Comparison of characteristics of fibers (cotton, linen wool silk nylon, polyester, and acrylic) by the burning test of fibers in a flame	2	CO 1
3	<b>LLO 3.</b> Compare characteristics of fibers (cotton, linen wool silk nylon, polyester, and acrylic) by solubility test in the chemical reagent.	Comparison of characteristics of fibers (cotton, linen wool silk nylon, polyester, and acrylic) by Solubility test in the chemical reagent.	2	CO 1
4	<b>LLO 4.</b> Removal of water-soluble sizes	Removal of water-soluble sizes	2	CO 1
5	<b>LLO 5.</b> Prepare a process flow chart showing dyeing textile material. (Sample collection of fabrics.)	Preparation of process flow chart showing dyeing textile material. (Sample collection of fabrics.)	2	CO 3
6	<b>LLO 6.</b> Bleaching of cotton and silk by using hydrogen peroxide.	Bleaching of cotton and silk by using hydrogen peroxide.	2	CO 4
7	<b>LLO 07.</b> Determine the hardness of the given water sample by the EDTA method.	Determination of hardness of given water sample by EDTA method.	2	CO 5
8	<b>LLO 08.</b> Determine chlorine hardness of water by Mohr's method.	Determination of chlorine hardness of water by Mohr's method.	2	CO 5
9	<b>LLO 09.</b> Determine water hardness by using a Soap test	Determination of water hardness by using a Soap test	2	CO 5
10	<b>LLO 10.</b> Determine Stain removal of different fabrics by using acid and base or white petrol	Determination of Stain removal of different fabrics by using acid and base or white petrol.	2	CO 6

Sr. No	Practical/Tutorial/Laboratory Learning Outcome (LLO)	Laboratory Experiment / Practical Titles /Tutorial Titles	Number of hrs.	Relevant COs
11	<b>LLO 11</b> Prepare starch, borax and gelatin solutions.	Preparation of starch, borax and gelatin solutions.	2	CO 6
12	<b>LLO 12</b> Dying of cotton with natural dyes.	Dying of cotton with natural dyes.	2	CO 3

**Note:** A suggestive list of practical LLOs is given in the table, more such practical LLOs can be added to attain the COs and competency. A compulsory of 12 experiments or more for textile chemistry practical LLOs needs to be performed so that the student reaches the 'Precision Level' of Dave's 'Psychomotor Domain Taxonomy' as generally required by the industry. Hence, the 'Process' and 'Product' related skills associated with each LLOs of the laboratory work are to be assessed according to a suggested sample of Performance Indicators (Weightage in %) as follows:

- 1) Preparation of experimental set up 20%
- 2) Setting and operation 20%
- 3) Safety measures 10%
- 4) Observations and Recording 10%
- 5) Interpretation of result and Conclusion 20%
- 6) Answer to sample questions 10%
- 7) Submission of the report in time 10%.

#### VI. SUGGESTED MICROPROJECT/ASSIGNMENT/ACTIVITIES FOR SPECIFIC LEARNING/SKILLS DEVELOPMENT(SELF-LEARNING)

**Micro project:**

**NOT APPLICABLE**

**Assignment:**

**NOT APPLICABLE**

#### VII. LABORATORY EQUIPMENT/INSTRUMENTS/TOOLS/SOFTWARE REQUIRED

Sr. No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Magnifying glass (pick glass)	01
2	Electronic balance with the scale range of 0.001 gm to 500 gm	10,11

**VIII. SUGGESTED FORWEIGHTAGETO LEARNING EFFORTS & ASSESSMENT PURPOSE**

(Specification Table)

Sr. No	Unit	Unit Title	Aligned COs	Learning Hours	R - Level	U - Level	A - Level	Total Marks
1	I	TEXTILE FIBRES	CO 1	09	08	04	02	14
2	II	FINISHES	CO 2	08	04	04	02	10
3	III	DYES	CO 3	06	06	02	02	10
4	IV	BLEACHES AND THEIR SUITABILITY	CO 4	06	06	04	04	14
5	V	WATER	CO 5	08	04	04	02	10
6	VI	MAINTAINANCE OF FIBRES	CO 6	08	06	02	04	12
<b>Grand Total</b>				<b>45</b>	<b>34</b>	<b>20</b>	<b>16</b>	<b>70</b>

**IX. ASSESSMENT METHODOLOGIES/TOOLS**

Formative assessment (Assessment for Learning)	Summative Assessment (Assessment of Learning)
Two Unit Tests of 30 marks and the average of two unit tests. For Laboratory Learning 25 MARKS	End Semester assessment of 25 marks for laboratory learning. End Semester assessment of 70 marks (Online)

**X. SUGGESTED COs- POs MATRIX FORM**

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline - Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	2	1	-	1	-	-	1	-	-
CO2	3	2	1	-	1	-	-	1	-	-
CO3	3	2	1	1	1	-	-	1	-	-
CO4	3	2	1	1	1	-	-	1	-	-
CO5	3	2	1	-	1	-	-	1	-	-
CO6	3	2	1	-	1	-	-	1	-	-

Legends:-High:03,Medium:02,Low:01,NoMapping:-

\*PSOs are to be formulated at the institute level

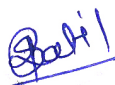
**XI.SUGGESTED LEARNING MATERIALS/BOOKS**

Sr.No.	Author	Title	Publisher with ISBN Number
1	V.P. Mehta	Polytechnic Chemistry	Jain brothers, New Delhi.
2	P.C. Jain and Monica Jain,	Applied Chemistry	Dhanpat Rai and Sons, New Delhi,2015, ISBN: 9352160002
3	S.N. Narkhede	Applied Chemistry	, M. M. Thatte, Nirali Prakashan Pune.
4	Shina Gupta, Renu Garg, Renusaini	Textbook of clothing and laundry	Shina Gupta, Renu Garg, Renusaini
5	SNDT Home science for F.Y.J.C	Elements of Textile Chemistry	SNDT Home science

**XII. LEARNING WEBSITES & PORTALS**

Sr.No	Link/Portal	Description
1	<a href="https://en.wikipedia.org/wiki/Textile_Manufacturing">https://en.wikipedia.org/wiki/Textile_Manufacturing</a>	Manufacturing process and methods
2	<a href="https://textilelearner.blogspot.com/2012/02/textile-manufacturing-process-process.html">https://textilelearner.blogspot.com/2012/02/textile-manufacturing-process-process.html</a>	Fibers textile materials.
3	<a href="https://en.wikipedia.org/wiki/List_of_textile_fibres">https://en.wikipedia.org/wiki/List_of_textile_fibres</a>	Types of fibers
4	<a href="https://en.wikipedia.org/wiki/Finishing_(textiles)">https://en.wikipedia.org/wiki/Finishing_(textiles)</a>	Finishing methods
5	<a href="http://apsacwestridge.edu.pk/assets/admin/upload/notes/Classification_of_Dyes.pdf">http://apsacwestridge.edu.pk/assets/admin/upload/notes/Classification_of_Dyes.pdf</a>	Classification of dyes


Name &amp; Signature:

  
**Smt. Rupali S. Patil**  
**Lecturer in Chemistry**  
**(Course Experts)**

Name &amp; Signature:

  
**Mr. S.S. Prabhune**  
**(Programme Head)**

Name &amp; Signature:

  
**Shri. S.B. Kulkarni**  
**(CDC In-charge)**





## GOVERNMENT POLYTECHNIC, PUNE

‘120 – NEP’ SCHEME

PROGRAMME	DIPLOMA IN CE/EE/ET/ME/MT/CM/IT/DDGM
PROGRAMME CODE	01/02/03/04/05/06/07/08
COURSE TITLE	Garment Construction Techniques: Kids
COURSE CODE	DD21203
PREREQUISITE COURSE CODE & TITLE	NA

### I. LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Course Type	Learning Scheme					Credits	Paper Duration	Assessment Scheme										Total Marks
			Actual Contact Hrs./Week			SLH	NLH			Theory			Based on LL & TSL				Based on SL			
			CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
												Max	Min	Max	Min	Max	Min	Max	Min	
DD21203	Garment Construction Techniques: Kids (Exit Course)	DSC	4	0	4	2	10	5	3	30	70	100	40	25	10	25@	10	25	10	175

**Total IKS Hrs. for Term: 2 Hrs.**

**Abbreviations:** CL-Classroom Learning, TL-Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS – Indian Knowledge System, SLA- Self Learning Assessment

**Legends:** @-Internal Assessment, # - External Assessment, \*# - Online Examination, @\$ - Internal Online Examination

**Note:**

**FA-TH** represents an average of two class tests of 30 marks each conducted during the semester.

1. If a candidate is not securing minimum passing marks in **FA-PR** (Formative Assessment - Practical) of any course, then the candidate shall be declared as '**Detained**' in that semester.
2. If a candidate does not secure minimum passing marks in **SLA** (Self Learning Assessment) of any course, then the candidate shall be declared as '**fail**' and will have to repeat and resubmit SLA work.
3. **Notional learning hours** for the semester are **(CL + LL + TL + SL) hrs. \* 15 Weeks**
4. **1 credit** is equivalent to **30 Notional hours**.
5. \* Self-learning hours shall not be reflected in the Timetable.
6. \* Self-learning includes micro-projects/assignments/other activities.

### II. RATIONALE:

This course aims to impart comprehensive knowledge and skills in designing and constructing children's garments, fostering a deep understanding of the children's garment manufacturing industry, and also helps in recognizing the market demand for children's clothing. The students proficiently employ pattern development and garment construction skills, progressing from basic to advanced techniques, including drafting, sewing, and finishing.

### III. COURSE LEVEL LEARNING OUTCOMES (COs)

Students will be able to achieve & demonstrate the following COs on completion of course-based learning

- CO1 -To understand the history, terminology, importance and advancement in the kid's garments.
- CO2 -To identify the physical growth aspect and size charts used in kid's garment construction.
- CO3 -To recognize various aspects of kid's garment designing and construction.
- CO4 -To analyse the kid's garment construction industries and the market.
- CO5 -To apply various layouts and materials used, trends in kid's accessories.

## IV. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr. No	Theory Learning Outcomes (TLO'S) aligned to CO's.	Learning content mapped with TLO's.	Suggested Learning Pedagogies	Relevant COs
<b>UNIT 1. UNDERSTANDING KID'S CLOTHING (CL 12 hrs, 14marks)</b>				
1.	<p><b>TLO 1.1</b> State the importance of the kid's garment manufacturing industry.</p> <p><b>TLO 1.2</b> Enlist the requirements for Kid's garment</p> <p><b>TLO 1.3</b> Describe the evolution of Kid's garments and the technology used.</p> <p><b>TLO 1.4</b> Enlist and explain types of Kid's garments and terminology used</p>	<p><b>1.1</b> Introduction to Kid's Wear</p> <p><b>1.2</b> Requirements of Kid's Clothing</p> <ul style="list-style-type: none"> <li>• Protection</li> <li>• Modesty</li> <li>• Adornment</li> <li>• Appearance</li> </ul> <p><b>1.3</b> Understanding Children's Basic Clothing Needs</p> <ul style="list-style-type: none"> <li>• Comfort</li> <li>• Safety</li> <li>• Self-help</li> <li>• Allowance for Growth</li> <li>• Easy care</li> </ul> <p><b>1.4</b> History of Kid's Clothing</p> <p><b>1.5</b> Terminology and Usage of following Kids' Garments/ Accessories Baby mittens, Baby suit, Baby sheets, Beanie, Bib/ baby apron, Bath Towel, Bloomer, Bonnet, Booties, Creeper, Diaper, Infant set, Jumper, Jumpsuit, Lap Pads, Nappies, Pinafore, Playsuit, Romper, Slips, Sleeping bag, Singlet, Skegging, Skort/ Culotte, Socks, Sunsuit</p>	<p>Demonstration, Flipped Classroom, Chalk-Board, Presentations, Hands-on</p>	<b>CO1</b>
<b>UNIT 2. UNDERSTANDING KID'S PHYSIQUE AND SIZE CHART (CL 12 hrs, 14marks)</b>				
2	<p><b>TLO 2.1</b> Enlist the Physical changes in the kid's body due to growth.</p> <p><b>TLO 2.2</b> Explain the requirements for specific age groups.</p> <p><b>TLO 2.3</b> List out preferences for garments (Boys and Girls)</p> <p><b>TLO 2.4</b> Enlist the various Size charts and labels available in kid's garments.</p> <p><b>TLO 2.5</b> Describe the procedure for recording kid's body measurements using various techniques.</p> <p><b>TLO 2.6</b> State the importance of taking accurate measurements in garment construction.</p>	<p><b>2.1</b> The Growth of Infants to Teenage- (Infants, Toddlers, Pre-School and Nursery Children, Elementary School Kids and Teenagers)</p> <p><b>2.2</b> Physical changes, requirements, references (Gender specific)</p> <p><b>2.3</b> Classification of Kids in the Size Chart</p> <p><b>2.4</b> Types of Measurements according to the Garments</p> <p><b>2.5</b> Taking Kids Measurements</p> <ul style="list-style-type: none"> <li>• Direct Body Measurements</li> <li>• Measurements from other clothing</li> </ul>	<p>Demonstration, Flipped Classroom, Chalk-Board, Presentations, Hands-on</p>	<b>CO2</b>

**UNIT-III DESIGNING KID'S GARMENTS (CL Hrs-12, Marks-14)**

3	<p><b>TLO 3.1</b> Enlist points to be considered while designing kid's garments.</p> <p><b>TLO 3.2</b> Enlist and explain points to be considered while sewing kid's garments.</p> <p><b>TLO 3.3</b> Enlist and explain various types of Kid's garments and their purposes.</p> <p><b>TLO 3.4</b> Analyse and explain elementary patterns used in kid's garments.</p> <p><b>TLO 3.5</b> Describe the Considerations while Buying Comfortable Kid's Clothing.</p>	<p><b>3.1</b> Designing Kid's Garments (according to the age group/ season)</p> <ul style="list-style-type: none"> <li>• Textiles and Trims - Use of Type of Fabric (Fibers/ Yarns), Motifs/ Prints, Texture, Colour, Aesthetics, Trims and quality parameters)</li> <li>• Patterns- Use of Collars, Sleeves, Plackets, Accessories, Fasteners, Embellishments, Lining etc.</li> <li>• Tips for safe Kid's Garment Sewing (application of Seams and Seam finishes)</li> </ul> <p><b>3.2</b> Garment Classification of Kid's Wear</p> <ul style="list-style-type: none"> <li>• Casual/ Day Wear</li> <li>• Night Wear</li> <li>• Uniforms</li> <li>• Party Wear</li> <li>• Sports Wear</li> <li>• High Fashion Wear</li> </ul> <p><b>3.3</b> Factors Affecting Selection of Clothing</p> <ul style="list-style-type: none"> <li>• Age</li> <li>• Climate and season</li> <li>• Occasion</li> <li>• Fashion</li> <li>• Income</li> <li>• Ease of Dressing and Understanding</li> <li>• Selection of Fabric</li> <li>• Application of Fasteners and Trimmings</li> </ul>	<p>Demonstration, Flipped Classroom, Chalk-Board, Presentations, Hands-on</p>	<p align="center"><b>CO3</b></p>
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<b>UNIT- IV INSIGHT OF KID’S GARMENT MARKET (CL Hrs-14, Marks-14)</b>			
4	<p><b>TLO 4.1:</b> Identify the importance of Kid’s Clothing in the Economy of India.</p> <p><b>TLO 4.2:</b> Enlist National and international brands available for Kid’s Wear.</p> <p><b>TLO 4.3:</b> Enlist and explain trends and forecast in Kid’s Wear.</p> <p><b>TLO 4.4:</b> Enlist and explain challenges, and opportunities in Kid’s Wear.</p> <p><b>TLO 4.5:</b> Identify fitting issues and remedial actions for Kid’s Wear.</p>	<p><b>4.1</b> Importance of Kid’s Clothing in the Economy of India</p> <p><b>4.2</b> Study of Brands for Kid’s Wear</p> <p><b>4.3</b> Current Trends in Kid’s Wear</p> <p><b>4.4</b> Kid’s Clothing Market Overview</p> <ul style="list-style-type: none"> <li>• Challenges</li> <li>• Opportunities</li> <li>• Forecasting</li> </ul> <p><b>4.5</b> Fitting Issues in Kid’s Ready to Wear</p>	<p>Demonstration, Flipped Classroom, Chalk-Board, Presentations, Hands-on</p> <p style="text-align: center;"><b>CO4</b></p>
<b>UNIT –V ACCESSORIES FOR KID’S (CL Hrs-14, Marks-14)</b>			
5	<p><b>TLO 5.1:</b> Analyse the importance of Accessories in Kid’s Garments.</p> <p><b>TLO 5.2:</b> Enlist and explain the material used for kid's accessories.</p> <p><b>TLO 5.3:</b> Enlist and explain the types of kid's accessories.</p> <p><b>TLO 5.4:</b> Analyse Kid’s trends in kid’s accessories.</p> <p><b>TLO 5.5:</b> Analyse the type of layouts and pricing strategy used for kid’s garments.</p>	<p><b>5.1</b> Importance of Accessories in Kid’s Garments</p> <p><b>5.2</b> Raw Material Used for Kids Accessories</p> <p><b>5.3</b> Accessories Types of Accessories Used</p> <p><b>5.4</b> Current Trends in Kid’s Accessories</p> <p><b>5.5</b> Types of Layouts for Kid's Garments</p> <p><b>5.6</b> Pricing and Costing of Kid’s Garments</p>	<p>Demonstration, Flipped Classroom, Chalk-Board, Presentations, Hands-on</p> <p style="text-align: center;"><b>CO5</b></p>

## V. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL/TUTORIAL EXPERIENCES.

Sr. No	Practical/Tutorial/Laboratory Learning Outcome (LLO)	Laboratory Experiment / Practical Titles /Tutorial Titles	Number of hrs.	Relevant COs
1	<p><b>LLO 1.1.</b> Identify tools for measuring, marking, drafting &amp; cutting and use of these tools with safety.</p> <p><b>LLO 1.2</b> Explain the measuring units and measuring techniques for required measurements.</p> <p><b>LLO 1.3</b> Draft the pattern for infants (age group- 0 to 1 year) garments.</p> <p><b>LLO 1.4</b> Use the paper economically - Check for shapes, front and back shoulder, and side.</p>	<p>Draft a pattern for infants (age group- 0to 1 year)</p> <ul style="list-style-type: none"> <li>• Singlet</li> <li>or</li> <li>• Romper/ Jumper/ Jumpsuit accommodating the following features-</li> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	04	CO1,CO2
2	<p><b>LLO 2.1</b> Cut the pattern using shears properly along the cutting line - Check the cutting edges.</p> <p><b>LLO 2.2</b> Finish the pattern with pattern particulars.</p> <p><b>LLO 2.3</b> Follow the safe measures and guard policy while handling scissors and sear.</p>	<p>Making a master pattern and fabric cutting for infants (age group- 0 to 1 year)</p> <ul style="list-style-type: none"> <li>• Singlet</li> <li>or</li> <li>• Romper/ Jumper/ Jump-suit accommodating the following features-</li> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	04	CO2,CO3
3	<p><b>LLO 3.1</b> Sew the Infant's garment by applying the component-making techniques.</p> <p><b>LLO 3.2</b> Use proper sewing aids while sewing the garment.</p> <p><b>LLO 3.3</b> Finish the garment by applying suitable fasteners.</p> <p><b>LLO 3.4</b> Solve the sewing machine problems with suitable remedies after finding the causes.</p> <p><b>LLO 3.5</b> Follow the safe measures and needle guard policy while sewing.</p>	<p>Sew and finish a Singlet/ Romper/ Jumper/ Jump-suit for infants (age group- 0 to 1 year) accommodating the following features-</p> <ul style="list-style-type: none"> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	04	CO3
4	<p><b>LLO 4.1</b> Identify tools for measuring, marking, drafting &amp; cutting and use of these tools with safety.</p> <p><b>LLO 4.2</b> Explain the measuring units and measuring techniques for required measurements.</p> <p><b>LLO 4.3</b> Draft the pattern for kid's (age group- 2 to 5 years) garments.</p> <p><b>LLO 4.4</b> Use the paper economically - Check for shapes, front and back shoulder, and side.</p>	<p>Draft a pattern for Party Frock (age group- 2 to 5 years) accommodating the following features-</p> <ul style="list-style-type: none"> <li>• Umbrella/ circular skirt</li> <li>• Flared/ Tulip/ Raglan sleeve</li> <li>• Frilled/ Peter pan collar</li> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	04	CO2,CO3
5	<p><b>LLO 5.1</b> Cut the pattern using shears properly along the cutting line - Check the</p>	<p>Prepare a master pattern and fabric cutting for Party Frock (age group- 2 to 5</p>	04	CO2,CO3

	<p>cutting edges.</p> <p><b>LLO 5.2</b> Finish the pattern with pattern particulars.</p> <p><b>LLO 5.3</b> Follow the safe measures and guard policy while handling scissors and sear.</p>	<p>years) accommodating the following features-</p> <ul style="list-style-type: none"> <li>• Umbrella/ circular skirt</li> <li>• Flared/ Tulip/ Raglan sleeve</li> <li>• Frilled/ Peter pan collar</li> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>		
6	<p><b>LLO 6.1</b> Sew the kid's garment by applying the component-making techniques.</p> <p><b>LLO 6.2</b> Use proper sewing aids while sewing the garment.</p> <p><b>LLO 6.3</b> Finish the garment by applying suitable fasteners.</p> <p><b>LLO 6.4</b> Solve the sewing machine problems with suitable remedies after finding the causes.</p> <p><b>LLO 6.5</b> Follow the safe measures and needle guard policy while sewing.</p>	<p>Sew and finish a Party Frock (age group- 2 to 5 years) accommodating the following features-</p> <ul style="list-style-type: none"> <li>• Umbrella/ circular skirt</li> <li>• Flared/ Tulip/ Raglan sleeve</li> <li>• Frilled/ Flat collar</li> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	08	CO2,CO3
7	<p><b>LLO 7.1</b> Identify tools for measuring, marking, drafting &amp; cutting and use of these tools with safety.</p> <p><b>LLO 7.2</b> Explain the measuring units and measuring techniques for required measurements.</p> <p><b>LLO 7.3</b> Draft the pattern for kid's (age group- 6 to 7 years) garments.</p> <p><b>LLO 7.4</b> Use the paper economically - Check for shapes, front and back shoulder, and side.</p>	<p>Draft a pattern for School Uniform (Pina fore/ Culottes and shirt) (age group- 6 to 7years) accommodating the following features-</p> <ul style="list-style-type: none"> <li>• Pleated skirt/ plated culottes</li> <li>• Plain/ Puff sleeve</li> <li>• Peter pan/ Shirt's collar</li> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	04	CO2,CO3
8	<p><b>LLO 8.1</b> Cut the pattern using shears properly along the cutting line - Check the cutting edges.</p> <p><b>LLO 8.2</b> Finish the pattern with pattern particulars.</p> <p><b>LLO 8.3</b> Follow the safe measures and guard policy while handling scissors and sear.</p>	<p>Prepare a master pattern and fabric cutting for School Uniform (Pina fore/ Culottes and shirt) (age group- 6 to 7 years)accommodating the following features-</p> <ul style="list-style-type: none"> <li>• Pleated skirt/ plated culottes</li> <li>• Plain/ Puff sleeve</li> <li>• Peter pan/ Shirt's collar</li> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	04	CO2,CO3
9	<p><b>LLO 9.1</b> Sew the kid's garment by applying the component-making techniques.</p> <p><b>LLO 9.2</b> Use proper sewing aids while sewing the garment.</p> <p><b>LLO 9.3</b> Finish the garment by applying suitable fasteners.</p> <p><b>LLO 9.4</b> Solve the sewing machine problems with suitable remedies after</p>	<p>Sew and finish a School Uniform (Pina fore/ Culottes and shirt) (age group- 6 to 7years) accommodating the following features-</p> <ul style="list-style-type: none"> <li>• Pleated skirt/ plated culottes</li> <li>• Plain/ Puff sleeve</li> <li>• Peter pan/ Shirt's collar</li> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	08	CO2,CO3

	finding the causes. <b>LLO 9.5</b> Follow the safe measures and needle guard policy while sewing.			
10	<b>LLO 10.1</b> Identify tools for measuring, marking, drafting & cutting and use of these tools with safety. <b>LLO 10.2</b> Explain the measuring units and measuring techniques for required measurements. <b>LLO 10.3</b> Draft the pattern for kids (age group- 8 to 10 years) garments. <b>LLO 10.4</b> Use the paper economically - Check for shapes, front and back shoulder, and side.	Draft a pattern for a Night Suit (Two pieces- Shirt and Pajama) (age group- 8 to 10 years) accommodating the following features- <ul style="list-style-type: none"> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	08	CO2,CO3
11	<b>LLO 11.1</b> Cut the pattern using shears properly along the cutting line - Check the cutting edges. <b>LLO 11.2</b> Finish the pattern with pattern particulars. <b>LLO 11.3</b> Follow the safe measures and guard policy while handling scissors and sear.	Prepare a master pattern and fabric cutting for a Night Suit (Two pieces- Shirt and Pajama) (age group- 8 to 10 years) accommodating the following features- <ul style="list-style-type: none"> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	04	CO2,CO3
12	<b>LLO 12.1</b> Sew the kid's garment by applying the component-making techniques. <b>LLO 12.2</b> Use proper sewing aids while sewing the garment. <b>LLO 12.3</b> Finish the garment by applying suitable fasteners. <b>LLO 12.4</b> Solve the sewing machine problems with suitable remedies after finding the causes. <b>LLO 12.5</b> Follow the safe measures and needle guard policy while sewing.	Sew and finish a Night Suit (Two pieces- Shirt and Pajama) (age group- 8 to 10 years) accommodating the following features- <ul style="list-style-type: none"> <li>• Suitable opening and fasteners</li> <li>• Trimmings</li> </ul>	08	CO2,CO3
Note: All practicals are compulsory.				

## VI. SUGGESTED MICRO PROJECT/ASSIGNMENT/ACTIVITIES FOR SPECIFIC LEARNING/SKILLS DEVELOPMENT (SELF-LEARNING)

### Micro project

- Make a library collection of kids' worn garments.
- Identify and rectify any kid's fitting problems from your family or neighbourhood (any five fitting problems).
- Make a collection of size charts of Kid's wear (any five national/ international brands)
- Make a sample library of Layouts for various types of fabric Print for Basic Bodice (One Directional, Bi-Directional, Stripes or Lines, Cheques or plaids and nursery prints).
- Prepare a PPT presentation stating elements of the Cost sheet and their importance.

**Assignment**

- Pattern Reading Assignment: Provide students with a pattern to analyse, identify symbols, and understand pattern markings.
- Pattern Alteration Assignment: Students should make basic pattern alterations to fit different body shapes and sizes for kids' garments.
- Garment Finishing and Pressing: Students should press and finish seams, edges, and hems for a professional look (Under pressing and Top pressing).
- Repurposing Assignment: Students should repurpose an old garment into a new one (simple) to encourage creativity and sustainability.
- Sewing Project Portfolio: Students should document their sewing projects with photos and descriptions, creating a portfolio to showcase their work(e-Work).
- Custom Fit Assignment: Students create pattern alteration for a custom-fit garment (Use any famous personality as a client) from scratch from earlier knowledge of designing courses.
- Finishing Techniques Identification Assignment: Students should visit the brand mall, outlets, stores and boutiques to analyse brand-specific finishing techniques and sizes to compile the visit report.

**VII. LABORATORY EQUIPMENT/INSTRUMENTS/TOOLS/SOFTWARE REQUIRED**

Sr. No.	Equipment Name with Broad Specifications	Relevant LLO Number
1	Fibreglass Dress Form: - Female and male, Female size -40, Male size -42. Dress Forms: It is a standardized duplication of a human form. It is cotton-padded, canvas-covered and set on a movable stand. It is used to take measurements, develop patterns and fit garment samples.	All
2	Rulers:- 12"/24" wooden, metal or plastic rulers. It is used for drawing straight lines per measurement. The marking and divisions on the ruler should be clear and accurate. Tailors square/ 'L' Square: - It is a 24"x 144" metal or plastic ruler with two arms that form a 90-degree angle. It is used to find a 45-degree angle mark outside and inside corners and extend the line through corners.	All
3	French Curve:- It is a curved plastic or metal ruler - It is used to draw curved lines of armholes and necklines.	All
4	Pin Holder:- Plastic/Wood material is used to hold pins and needles for easy accessibility and storage.	All
5	Hip Curve:- It is a curved plastic or metal ruler available in different sizes. It is used to draw curved lines.	All
6	Scissors:- It is a cutting tool, having a size of 8" to 12", with two sharply pointed straight blades. Used to cut paper patterns and fabric. Paper-cutting scissors and cloth-cutting scissors are different.	All
7	Notcher:- It is a punching tool that makes 'U' shaped notch marks. It is used to make 'U' shaped notch marks, which indicate seam allowance, central lines, etc. It looks like a single-punch machine.	All
8	Tailors' Chalk: These chinks can be rubbed off easily on the fabric surface. It is available in various colours with fine edges. It is used for marking the lines and design details on fabric.	All
9	Tracing Wheel:- It is a toothed metal wheel with a wooden or plastic handle. It is used to transfer lines from one pattern to another or from the final pattern to the fabric.	All
10	Pins & Pin Holder:- Pins and small stuffed pillows are also required in pattern-making.	All
11	Stiletto: It is a metal rod with a tapering needle point end and a wooden or plastic handle. It is used for punching dart ends on patterns, and marking the placement of pockets, trimmings, bands etc.	All



12	Thin Brown Paper:- These are brown paper rolls or sheets of various sizes and thicknesses. Used for preliminary pattern drafting and the development of patterns.	All
13	Thick Brown Paper:- These are brown paper rolls or sheets of various sizes and thicknesses. Used for preliminary pattern drafting and the development of the final pattern. - Strong and thick ones are used for making patterns that can be used repeatedly.	All
14	All 14 Thick Brown Paper:- These are brown paper rolls or sheets of various sizes and thicknesses. Used for preliminary pattern drafting and the development of the final pattern. - Strong and thick ones are used for making patterns that can be used repeatedly.	All
15	Sewing Thread: - A thread is a long strand of material, often composed of several filaments or fibres, used for sewing garments.	3,6,9,12
16	Hand Needle: - A sewing needle, used for hand-sewing, is a long, slender tool with a pointed tip at one end and a hole (or eye) to hold the sewing thread.	3,6,9,12
17	Machine Needle: - A sewing machine needle is a specialized needle used in a sewing machine.	3,6,9,12
18	Iron: - A clothes iron is a small appliance that, when heated, is used to press clothes to remove wrinkles and unwanted creases.	3,6,9,12
19	Iron board: - An ironing board is generally a large, flat piece of board or metal covered with heat-safe padding on which clothing or linens may be ironed safely.	3,6,9,12
20	Single needle lock stitch machine: - A sewing machine is used to sew fabric and materials together with thread.	3,6,9,12
21	Overlock sewing machine: - These are specialized sewing machines. Overlocks form interlocking stitches using one or two needles, and one or two loopers help prevent puckering of the fabric pieces.	3,6,9,12
22	Trims- Any materials or components used in clothing that are not the main fabric are referred to as trims. The trims can be Sewing Thread, decorative machine stitching, Buttons (both functional and decorative element), Rivets, Zipper, Hasps and Slider, Hook and eye closure, all fasteners, Lining, Interlining, Labels, Patches, Motifs, Embroidery, Smocking, Ribbons, Drawstrings, Laces, Tassels, Braid, Rickrack, Appliqués, Ruffles, Fur, Leather, Shoulder pads and Bias binding.	3,6,9,12

**VIII. SUGGESTED FOR WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE**  
(Specification Table)

Sr. No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Understanding Kid's Clothing	1	12	06	04	04	14
2	II	Understanding Kid's Physique and Size chart	2	12	06	04	04	14
3	III	Designing Kid's Garments	3	12	06	04	04	14
4	IV	Insight of Kid's Garment Market	4	14	06	04	04	14
5	V	Accessories for Kid's	5	14	06	04	04	14
<b>Grand Total</b>				<b>64</b>	<b>30</b>	<b>20</b>	<b>20</b>	<b>70</b>

**IX.ASSESSMENT METHODOLOGIES/TOOLS**

<b>Formative assessment (Assessment for Learning)</b>	<b>Summative Assessment (Assessment of Learning)</b>
1. Tests 2. Rubrics for COs 3. Assignment 4. Midterm Exam 5. Self-Learning 6. Term Work 7. Seminar/Presentation	1. End Term Exam 2. Micro-project 3. Tutorial Performance

**X. SUGGESTED COs- POs MATRIX FORM**

<b>Course Outcomes (COs)</b>	<b>Programme Outcomes (POs)</b>							<b>Programme Specific Outcomes *(PSOs)</b>		
	<b>PO-1 Basic and Discipline-Specific Knowledge</b>	<b>PO-2 Problem Analysis</b>	<b>PO-3 Design/ Development of Solutions</b>	<b>PO-4 Engineering Tools</b>	<b>PO-5 Engineering Practices for Society, Sustainability and Environment</b>	<b>PO-6 Project Management</b>	<b>PO-7 Life Long Learning</b>	<b>PSO-1</b>	<b>PSO-2</b>	<b>PSO-3</b>
<b>CO1</b>	3	3	1	3	2	0	3	1	2	0
<b>CO2</b>	3	2	1	3	2	0	3	3	3	0
<b>CO3</b>	3	2	2	3	2	0	3	2	2	0
<b>CO4</b>	3	3	2	2	1	2	3	3	1	0
<b>CO5</b>	2	2	0	3	1	0	2	3	0	0

**Legends:- High:03, Medium:02, Low:01, No Mapping: -**

\*PSOs are to be formulated at the institute level

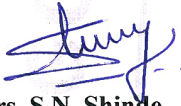

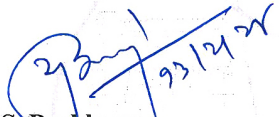

**XI.SUGGESTED LEARNING MATERIALS/BOOKS**

<b>Sr. No.</b>	<b>Author</b>	<b>Title</b>	<b>Publisher</b>
1	Dr. Navneet Kaur	Comdex Fashion Design Volume I And II	Dreamtech Press, 19-A, Ansari Road, Daryaganj, New Delhi, 110002 ISBN 9789350040942
2	Winifred Aldrich	Metric Pattern Cutting for Children's Wear and Babywear	Wiley; 4th edition (July 7, 2009) ISBN 978-1405182928
3	Padmavati B.	Techniques Of Drafting and Pattern Making: Garments for Kids and Adolescents	Atlantic; Edition (1 July 2022); Atlantic Publishers and Distributors (P) Ltd. ISBN 9788126909803
4	Reader's Digest Association	Reader's Digest Complete Guide to Sewing: Step by step	Reader's Digest (9 October 1978) ISBN 9780276001826

5	Carla Hegeman Crim	Pattern Making for Kids' Clothes: All You Need to Know about Designing, Adapting, and Customizing Sewing Patterns for Children's Clothing	B.E.S. Publishing; Illustrated edition (20 March 2014) ISBN 978-1438003863
6	R. Senthilkumar	Kids Garment- Market, branding, categories, manufacturing Technologies	Create space Independent Pub (22 May2016) ISBN 978-1533402110

## XIII. LEARNING WEBSITES &amp; PORTALS

Sr.No	Link/Portal	Description
1.	<a href="https://ncert.nic.in/textbook/pdf/kehe202.pdf">https://ncert.nic.in/textbook/pdf/kehe202.pdf</a>	<ul style="list-style-type: none"> <li>Requirements of Kid's Clothing</li> <li>Understanding Children's basic Clothing Needs</li> </ul>

<p>Name &amp; Signature:</p>  <p>Mrs. S.N. Shinde Lecturer – DDGM</p>	<p>Name &amp; Signature:</p>  <p>Ms. S.E. Kurzekar Lecturer - DDGM</p>
<p>Name &amp; Signature:</p>  <p>Mr. S.S. Prabhune (Programme Head)</p>	<p>Name &amp; Signature:</p>  <p>Shri. S.B. Kulkarni (CDC In-charge)</p>



**GOVERNMENT POLYTECHNIC, PUNE**

'120 – NEP' SCHEME

<b>PROGRAMME</b>	<b>DIPLOMA IN CE/EE/ET/ME/MT/CM/IT/DDGM</b>
<b>PROGRAMME CODE</b>	<b>01/02/03/04/05/06/07/08</b>
<b>COURSE TITLE</b>	<b>INDIAN TEXTILES AND EMBROIDERIES</b>
<b>COURSE CODE</b>	<b>DD21204</b>
<b>PREREQUISITE COURSE CODE &amp; TITLE</b>	<b>NA</b>

**I. LEARNING & ASSESSMENT SCHEME**

Course Code	Course Title	Course Category/s	Learning Scheme						Credits	Paper Duration	Assessment Scheme										Total Marks
			Actual Contact Hrs./Week			SLH	NLH	Theory			Based on LL & TSL				Based on SL						
			CL	TL	LL						FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
													Max	Min	Max	Min	Max	Min	Max	Min	
DD21204	INDIAN TEXTILES AND EMBROIDERIES	DSC	4	0	4	0	8	4	03	30	70	100	40	50	20	25@	10	-	-	175	

**Total IKS Hrs for Sem. : 2 Hrs**

Abbreviations: CL- Class Room Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, \*# On Line Examination , @\$ Internal Online Examination  
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.\* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. \* Self learning hours shall not be reflected in the Time Table.
7. \* Self learning includes micro project / assignment / other activities

**II. RATIONALE:**

Indian textiles and embroidery play an important role in the fashion industry and also have a rich history and significant cultural value. This course develops an Indian traditional embroidery skills that enable one to embellish garments and provides comprehensive guidelines for identifying traditional textile colors, motifs and textures. Indian textiles and embroidery enhance the traditional and contemporary designing capabilities used in theme based designing.

**III. COURSE LEVEL LEARNING OUTCOMES (CO's)**

Students will be able to achieve & demonstrate the following CO's on completion of course-based learning

- CO1 - Select appropriate tools, material, motifs, according to embroidery.
- CO2- Recognize basic stitches and their families.
- CO3- Use design and techniques of Eastern and Southern regional embroidery.
- CO4- Apply traditional embroidery motifs and stitches of western and Northern region.
- CO5- Create contemporary designs using embroidery stitches on traditional textile.

**IV. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT:**

Sr. No	Theory Learning Outcomes (TLO'S) aligned to CO's.	Learning content mapped with TLO's.	Suggested Learning Pedagogies	Relevant COs
<b>UNIT 1 – TOOLS &amp; SUPPLIES FOR HAND EMBROIDERIES (CL Hrs. - 10 , Marks- 14 )</b>				
1.	<p><b>TLO 1.1</b> Define terms of embroidery.</p> <p><b>TLO 1.2</b> Explain types of design.</p> <p><b>TLO 1.3</b> Differentiate between different types of yarns and threads used for embroidery.</p> <p><b>TLO 1.4</b> Classify the different fabrics on the basis of features.</p> <p><b>TLO 1.5</b> Explain types of embroidery needle.</p> <p><b>TLO 1.6</b> Explain embroidery hoop.</p>	<p><b>1. Introduction</b></p> <p><b>1.1 History and embroidery terminology</b> - Embroidery, Aari, Adda, Applique, Design, Design Catalogue, Frame, Framing, Fusing Paper, Gota, Hoop, Hooping, Marking, Needle, Repeat, Strand, Thread, Zardozi. Needle Threader, Seam Ripper, Thimble, Scissors for hand embroidery, Micro- tip scissors, pinking shears, Embroidery Designs.</p> <p><b>1.2 Types of Design-</b></p> <p>1.2.1 Natural Design 1.2.2. Floral Design 1.2.3. Geometric Designs 1.2.4. Abstract Designs 1.2.5. Mythological Designs 1.2.6. Architectural Designs 1.2.7. Tribal Designs 1.2.8. Stylish Designs.</p> <p><b>1.3 Tracing Materials and methods-</b></p> <p>1.3.1 Transferring design with heat 1.3.2 Transferring design using light. 1.3.3 Transferring design using carbon paper. 1.3.4 Transferring design with prick and pounce.</p> <p><b>1.4 Tools and Materials</b></p> <p><b>1.4.1 Types of Fabrics</b></p> <p><b>1.4.2 Types of Needles</b> - Crewel needle, Tapestry needle, Milliner needle, Chenille needle, Sharp needle, Beading needle</p> <p><b>1.4.3 Types of Threads</b> - Pearl cotton, Metallic threads, Satin and rayon threads, Over dyed threads, Wool threads, Novelty threads, Pure silk sewing thread.</p> <p><b>1.4.4 Embroidery hoop and frame</b></p>	<p>Video Chalk-Board Presentations</p>	<p><b>CO1</b></p>
<b>UNIT 2 – FUNDAMENTALS OF EMBROIDERY (CL Hrs. - 12, Marks- 14 )</b>				
2	<p><b>TLO 2.1</b> Analyse the need and Importance of Indian embroidery in Apparel Industry.</p> <p><b>TLO 2.2</b> Identify the</p>	<p><b>2.1</b> Need and Importance of embroidery.</p> <p><b>2.2</b> Stitch Family</p> <p><b>2.2.1</b> Outlining Stitches - Running Stitch ,Back Stitch, Stem Stitch</p> <p><b>2.2.2</b> Loop Stitches - Chain Stitch, Lazy</p>	<p>Video Chalk-Board</p>	<p><b>CO2</b></p>

	<p>different basic stitches of embroidery.  <b>TLO 2.3</b> Create embroidery motif using any stitch family.</p>	<p>Daisy, Blanket Stitch, Feather Stitch Buttonhole Stitch..  <b>2.2.3</b> Filling Stitches - Satin Stitch, Long and Short Stitches, Fish-bone Stitch.  <b>2.2.4</b> Knotted and Couching Stitches- Bullion Knot Stitch, French Knot, Basic Couching , Bhokhara Couching  <b>2.2.5</b> Precautionary measures while doing embroidery.</p>		
<p><b>UNIT 3 – EASTERN AND SOUTHERN INDIAN EMBROIDERY AND TEXTILE</b>  <b>(CL Hrs. - 14 , Marks- 14)</b></p>				
3	<p><b>TLO 3.1</b> Classify the Indian Embroidery.  <b>TLO 3.2</b> List the materials, thread, colors stitches and motifs in kantha, kasuti embroidery.  <b>TLO 3.3</b> Explain the elements and features of Kantha embroidery.  <b>TLO 3.4</b> .Explain the elements and features of Kasuti embroidery.  <b>TLO 3.5</b> Identify different features of Eastern and Southern Indian Textiles.  <b>TLO 3.6</b> Analyse the unique characteristics of Eastern and Southern Indian Textiles  <b>TLO 3.7</b> Classify the Eastern Southern Indian region textile.</p>	<p><b>3.1</b> Classification of Indian Embroidery- Different Regional style  <b>3.2</b> Branches of Indian Embroidery  <b>EASTERN INDIAN EMBROIDERY</b>  <b>3.3. KANTHA EMBROIDERY</b>  <b>3.3.1</b> Origin, Material, Thread, Colors, Stitches, Motifs, End Use  <b>3.3.2</b> Types of Kantha –Arshilata, Bayton, Durjani/Thalia, Lep, Oar, Sujani, Rumal Kantha.  <b>3.4. ORISSA APPLIQUE WORK</b>  <b>3.4.1</b> Origin, Material, Thread, Colors, Stitches, Motifs, End Use.  <b>3.5 EASTERN INDIAN TEXTILE</b>  <b>3.5.1</b> Bengal-Jamdhani Saree, ,Baluchari Saree, Dacca Musline  <b>3.5.2.</b>Orissa- Bandhas of Odisha, Applique work  <b>3.5.3.</b>Assam-Muga Silk , Tussar Silk  <b>SOUTHERN INDIAN EMBROIDERY</b>  <b>3.6. KASUTI EMBROIDERY</b>  <b>3.6.1</b> Origin, Material, Thread, Colors, Stitches, Motifs.  <b>3.6.2</b> Characteristics of stitches used in embroidery &amp; working styles of stitches – Gavanti, Murgi, Negi, Menthi.  <b>3.7. SOUTHERN INDIAN TEXTILE</b>  <b>3.7.1</b> Andra Pradesh - Telia Rumal, Pochampalli Ikats, Kalamkari ,Gadwal  <b>3.7.2.</b>Tamilnadu Kornad, Kanjeevaram Saree, Pochampali Saree, Pudvai  <b>3.7.3.</b>Karnataka :- Mysore Silk ,Ikal Saree  <b>3.7.4.</b>Kerala- Chendamangalam saree, Kuthampully saree.</p>	<p>Video  Chalk-Board,  Presentations</p>	<p>CO3,5</p>
<p><b>UNIT 4 – WESTERN INDIAN EMBROIDERY AND TEXTILE</b>  <b>(CL Hrs. - 14 , Marks- 14)</b></p>				

4.	<p><b>TLO 4.1</b> Explain the elements and features of Phulkhari embroidery.</p> <p><b>TLO 4.2</b> Explain the elements and features of Kathiawar embroidery.</p> <p><b>TLO 4.3</b> Identify different features of Western Indian Textiles.</p> <p><b>TLO 4.4</b> Analyse the unique characteristics of Western Indian Textiles.</p> <p><b>TLO 4.5</b> Choose appropriate Western Indian Textiles for apparel clothing.</p>	<p><b>4.1 PHULKARI EMBROIDERY</b>  <b>4.1.1</b> Origin, Material, Thread, Colors, Stitches, Motifs.  <b>4.1.2 Types of Phulkari-</b> Chop, Subar, Saloo, Til Patra, Pachranga/ Satranga, Reshmu Sheesha, Nilak, Shishedar, Sainchi Phulkari.  <b>4.1.3. Types of Baghs:-</b> Vari Da Bagh, Ghunghat Bagh, Bawan Bagh, Darshan Dwar.  <b>KUTCH AND KATHIAWAR EMBROIDERY</b>  <b>4.2.1.</b>Origin, Material, Thread, Colors, Stitches, Motifs.  <b>4.2.2.</b> Kutch Embroidery- Mochi Bharat, Ahir Bharat, Kanbi Bharat, Rabari Work  <b>4.2.3</b> Kathiawar Embroidery - Heer Bharat, Abhala Bharat, Moti Bharat, Sindhi Taropa, Applique Work  <b>4.3. WESTERN INDIAN TEXTILE</b>  <b>4.3.1 Gujarat-</b> Patola of Gujrat, Panetar, Gharchola, Bandhani of Gujarat  <b>4.3.2 Rajashtan-</b>Lahariya, Bandhej, Block Printing, Bagru prints, Sanganer prints.  <b>4.3.3. Madhay Pradesh-</b> Maheshawari Saree, Chanderi Saree.  <b>4.3.4. Maharashtra-</b> Paithani, Khan, Himru, Amru</p>	Video Chalk-Board Presentations	CO4,5
<b>UNIT 5 – NORTHERN INDIAN EMBROIDERY AND TEXTILE (CL Hrs. - 14 , Marks- 14 )</b>				
5.	<p><b>TLO 5.1</b> Identify the types of Stitches used in Chikankari .</p> <p><b>TLO 5.2</b> Explain fabrics used in Kashida of Kashmir.</p> <p><b>TLO 5.3</b> Identify the unique characteristics of Kashida of Kashmir and Chikankari of Uttar Pradesh.</p> <p><b>TLO 5.4</b> Apply knowledge of Northern Indian Textile in Design Development Process.</p>	<p><b>5.1 CHIKANKARI EMBROIDERY</b>  <b>5.1.1</b> Origin, Material, Thread, Colors, Stitches- Flat Stitches, Embossed Stitches and Jali work.  <b>5.2. KASHIDA OF KASHMIR EMBROIDERY</b>  <b>5.2.1</b> Origin, Material, Thread, Colors, Motifs  <b>5.4 NORTHERN INDIAN TEXTILE</b>  <b>5.4.1 Kashmir:-</b>Kashmir Shawls  <b>5.4.2 Himachal Pradesh-</b>Kullu and Kinnaur Shawl  <b>5.5 FLOOR COVERING-</b> Carpet, Durries and Rugs.</p>	Video Chalk-Board Presentations	CO4,5



## V. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL/TUTORIAL EXPERIENCES.

Sr. No	Practical/Tutorial/Laboratory Learning Outcome (LLO)	Laboratory Experiment / Practical Titles /Tutorial Titles	Number of hrs.	Relevant COs
1	<p><b>LLO 1.1</b> Identify the different basic stitches of embroidery.</p> <p><b>LLO 1.2</b> Develop charting of design.</p> <p><b>LLO 1.3</b> Select appropriate stitches for sample.</p>	<p>Demonstration of - following</p> <p><b>Outlining stitches.</b>-Running ,back, stem stitch.</p> <p><b>Loop Stitches</b> -Chain Stitch, Lazy Daisy, Blanket Stitch, Feather Stitch Buttonhole Stitch of hand embroidery and Practice sample making.</p> <p><b>Filling Stitches</b>-Satin Stitch, Long and Short Stitches, Fish-bone Stitch.</p> <p><b>Knotted and Couching Stitches</b>-Bullion Knot Stitch, French Knot, Basic Couching , Bhokhara Couching in Basic hand embroider and Practice sample making .</p>	08	CO1,2,5
2	<p><b>LLO 2.1</b> Identify appropriate design,fabrics, colors, stitches and motifs of Kantha.</p> <p><b>LLO 2.2</b> Develop an article using Kantha of Bengal.</p>	Develop article using charting of design,colour combination ,traditional stitches and motifs of Kantha of Bengal.	08	CO3,5
3	<p><b>LLO 3.1</b> Identify appropriate design,fabrics, colors, stitches and motifs of for Applique work.</p> <p><b>LLO 3.2</b> Develop an article using Applique work.</p>	Develop article using charting of design,colour combination ,traditional stitches and motifs of Applique of Orissa.	08	CO3,5
4	<p><b>LLO 4.1</b> Identify different fabrics,colors,motifs for Kasuti of karnataka</p> <p><b>LLO 4.2</b> Develop the given an article using Kasuti of karnataka.</p>	Develop article using charting of design,colour combination traditional stitches and motifs of Kasuti of karnataka.	06	CO3,5
5	<p><b>LLO 5.1</b> Identify different fabrics,colors,motifs for Phulkari of Punjab.</p> <p><b>LLO 5.2</b> Develop the given an article using Phulkari of Punjab.</p>	Develop article using charting of design,colour combination traditional stitches and motifs of Phulkari of Punjab.	08	CO4,5
6	<p><b>LLO 6.1</b> Identify appropriate design,fabrics, colors, stitches and motifs of Kathiawar Embroidery.</p> <p><b>LLO 6.2</b> Develop an article using Kathiawar Embroidery.</p>	Develop an article using charting of design,colour combination ,traditional stitches and motifs of Kutch or Kathiawar of Gujarat .	08	CO4,5
7	<p><b>LLO 7.1</b> Identify the different fabrics, colors, motif for making an article of Chikankari embroidery.</p> <p><b>LLO 7.2</b> Develop the given sample article using Chikankari embroidery.</p>	Develop an article using charting of design,colour combinations traditional stitches and motifs of Chikankari of Uttar pradesh.	06	CO 4,5
8.	<b>LLO 8.1</b> Select the appropriate	A. Collect the photographs & information of Current trends of Indian embroideries &		CO 1,2,3,4,5

	Choose appropriate Indian embroideries & textile for developing Contemporary Design. <b>LLO 8.2</b> Identify the process parameters for 5R Concept. <b>LLO 8.3</b> Apply sustainability application in article of clothing.	textiles of India. B. Develop an article using printed textile with application of Current trend of Indian embroideries  <b>OR</b> A. Prepare an article of clothing by use of the 5Rs concept (Refuse,Reduce, Reuse ,Repurpose and Recycle) to promote sustainable Regional Indian embroidery and Textiles.	04	
9	<b>LLO 9.1</b> Analyze the application of embroideries and traditional textile in different brands and boutiques.	Visit to various boutique or retail shops or Exhibitions to know application of embroideries and traditional textile of India and Prepare report .	04	CO 2,3,4,5
10	<b>LLO 10.1</b> Showcasing the presentation skills.	Showcase articles done in term work.(In-house Display)	04	CO 2,3,4,5

**VI. SUGGESTED MICRO PROJECT/ASSIGNMENT/ACTIVITIES FOR SPECIFIC LEARNING/SKILLS DEVELOPMENT (SELF-LEARNING)**

SLA NOT APPLICABLE

**VII. LABORATORY EQUIPMENT/INSTRUMENTS/TOOLS/SOFTWARE REQUIRED**

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Fabric-Muslin ,Cotton, Khaddar, Silk, Casement, Flannel , Aida (Matty) (As per requirement of project)	All
2	Needles- -1-12-Hand Needle,14-18-Machine Needle	All
3	Embroidery Rings/Hoops-13-27 cm	All
4	Embroidery Threads-High quality (Doli/Anchor/DMC)- Six-Stranded Cotton	All
5	Yellow and white carbon paper –A4 size	All
6	Tracing paper /drawing paper full size ,A-4 size Butter Paper	All
7	Glass & plastic mirror-round shape ,square shape .	All

**VIII. SUGGESTED FOR WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE**  
 (Specification Table)

Sr. No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Tools & Supplies For Hand Embroideries	CO1	10	06	08	00	14
2	II	Fundamentals Of Embroidery	CO2	12	06	08	00	14
3	III	Eastern And Southern Indian Embroidery And Textile	CO3,5	14	06	04	04	14
4	IV	Western Indian Embroidery And Textile	CO4,5	14	06	04	04	14
5	V	Northern Indian Embroidery And Textile	CO4,5	14	06	04	04	14
<b>Grand Total</b>				64	30	28	12	70

**IX. ASSESSMENT METHODOLOGIES/TOOLS**

Formative assessment (Assessment for Learning)	Summative Assessment (Assessment of Learning)
1. Progressive Test 2. Term Work	1. End Term Examination (Theory) 2. End Term Practical Examination

**X. SUGGESTED COS- POs MATRIX FORM**

Course Outcomes (COs)	Programme Outcomes(POs)							Programme Specific Outcomes *(PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2
CO1	2	1	2	1	3	-	2	1	2
CO2	3	-	2	-	3	-	3	-	3
CO3	1	-	-	-	3	-	2	-	2
CO4	3	-	-	-	3	-	-	-	1
CO5	2	1	3	-	3	2	2	-	2


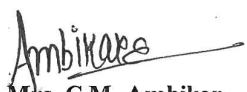


**Legends:- High:03, Medium:02, Low:01, NoMapping: -**  
 \*PSOs are to be formulated at the institute level

**XI. SUGGESTED LEARNING MATERIALS/BOOKS**

Sr.No	Author	Title	Publisher
1	Reader's Digest.	Complete Guide to Needle Work	Reader's digest.-ISBN-0895770598
2	Kamaladevi Chattopadhyaya	Indian Embroidery	Wiley Eastern Limited ISBN-13 :978-0852261118
3	Usha Shrikant-Part-I	Ethnic Embroidery of India Usha Shrikant-part-I	Honesty publishers. ISBN-9788175250796
4	Shailaja D. Naik	Traditional Embroideries of India	Publisher A.P.H. Publishing Corporation, 1996 ISBN- 8170247314,9788170247319
5	Neelam Grewal	The Needle Lore	Ajanta Publications ISBN-13:9788120202047
6	Linda Lyntan	The Sari	Blackwell science ISBN 10 : 1405102780
7	Dover	Encyclopaedia of embroidery	Dover publication-ISBN-13 978-0486229294

**XII. LEARNING WEBSITES & PORTALS**

Sr.No	Link/Portal	Description
1.	<a href="https://en.wikipedia.org/wiki/Straight_stitch">https://en.wikipedia.org/wiki/Straight_stitch</a>	Embroidery basic stitches video
2.	<a href="https://textilevaluechain.in/in-depth-analysis/articles/traditional-textiles/kasuti-embroidery-of-karnataka/">https://textilevaluechain.in/in-depth-analysis/articles/traditional-textiles/kasuti-embroidery-of-karnataka/</a>	Kasuti Embroidery
3.	<a href="https://khinkhwab.com/blogs/news/phulkari-the-dyeing-embroidery-of-punjab">https://khinkhwab.com/blogs/news/phulkari-the-dyeing-embroidery-of-punjab</a>	Punjab Embroidery
4.	<a href="https://dsource.in/sites/default/files/resource/kantha-embroidery-kolkata/downloads/file/Resource-Kantha_Embroidery-Kolkata.pdf">https://dsource.in/sites/default/files/resource/kantha-embroidery-kolkata/downloads/file/Resource-Kantha_Embroidery-Kolkata.pdf</a>	Kantha Embroidery
5.	<a href="https://handlooms.nic.in/assets/img/Publications/Paithani">https://handlooms.nic.in/assets/img/Publications/Paithani</a>	Paithani saree of Maharashtra
6.	<a href="https://www.indiahandloombrand.gov.in/Members/product_details/76">https://www.indiahandloombrand.gov.in/Members/product_details/76</a>	Ilkal Saree
7.	<a href="https://www.parinita.co.in/pages/about-bengal-handlooms">https://www.parinita.co.in/pages/about-bengal-handlooms</a>	Bengal region saris
8.	<a href="https://kashmirtextiles.com/">https://kashmirtextiles.com/</a>	Kashmir Textiles
9.	<a href="https://www.textileschool.com/7101/indian-traditional-textile-from-kashmir-kashida-embroidery/">https://www.textileschool.com/7101/indian-traditional-textile-from-kashmir-kashida-embroidery/</a>	Kashmir Embroidery
10.	<a href="https://kutch.gujarat.gov.in/assets/downloads/1_Kutch_Embroidery.pdf">https://kutch.gujarat.gov.in/assets/downloads/1_Kutch_Embroidery.pdf</a>	Kutch Embroidery

<p>Name &amp; Signature:</p> <p> Ms. S.E. Kurzekar Lecturer - DDGM</p>	<p>Name &amp; Signature:</p> <p> Mrs. C.M. Ambikar Lecturer - DDGM</p>
<p>Name &amp; Signature:</p> <p> Mr. S.S. Prabhune (Programme Head)</p>	<p>Name &amp; Signature:</p> <p> Shri. S.B. Kulkarni (CDC In-charge)</p>





## GOVERNMENT POLYTECHNIC, PUNE

‘120 – NEP’ SCHEME

<b>PROGRAMME</b>	<b>DIPLOMA IN DDGM</b>
<b>PROGRAMME CODE</b>	<b>08</b>
<b>COURSE TITLE</b>	<b>FASHION DRAWING AND ART APPRECIATION</b>
<b>COURSE CODE</b>	<b>DD21205</b>
<b>PREREQUISITE COURSE CODE &amp; TITLE</b>	<b>NA</b>

### I. LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Course Type	Learning Scheme					Credits	Paper Duration Hrs.	Assessment Scheme										Total Marks
			Actual Contact Hrs./Week			SLH	NLH			Theory			Based on LL & TSL				Based on SL			
			CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
						Max	Min					Max	Min	Max	Min	Max	Min	Max	Min	
DD21205	FASHION DRAWING AND ART APPRECIATION	DSC	00	00	04	02	06	3	00	00	00	00	00	50	20	50@	20	25	10	125

**Total IKS Hrs for Term: 02 Hrs**

**Abbreviations:** CL-Classroom Learning, TL-Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS – Indian Knowledge System, SLA- Self Learning Assessment

**Legends:** @-Internal Assessment, # - External Assessment, \*# - Online Examination, @\$ - Internal Online Examination

**Note:**

**FA-TH** represents an average of two class tests of 30 marks each conducted during the semester.

1. If a candidate is not securing minimum passing marks in **FA-PR** (Formative Assessment - Practical) of any course, then the candidate shall be declared as '**Detained**' in that semester.
2. If a candidate does not secure minimum passing marks in SLA (Self Learning Assessment) of any course, then the candidate shall be declared as '**fail**' and will have to repeat and resubmit SLA work.
3. **Notional learning hours** for the semester are **(CL + LL + TL + SL) hrs. \* 15 Weeks**
4. **1 credit** is equivalent to **30 Notional hours**.
5. \* Self-learning hours shall not be reflected in the Timetable.
- 6.\*Self-learning includes micro-projects/assignments/other activities.

### II. RATIONALE:

This course applies the art movement fashion ideas in a visual form, that enables to create application ideas through different figure forms that, including quick stylized poses, texture, print, draping, accessories, garment with suitable color interpretation.

### III. COURSE LEVEL LEARNING OUTCOMES (CO'S)

Students will be able to achieve & demonstrate the following CO's on completion of course-based learning

- CO1. Develop proportionate fashion croquis using quick sketching techniques and weight distribution
- CO2. Apply Gestalt Law to prints and design.
- CO3. Analyze three-dimensional fabric silhouette through live drape.
- CO4. Apply art movements inspiration on garments and accessories.
- CO5. Illustrate the garment inspired from Indian traditional painting.

## IV. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL/TUTORIAL EXPERIENCES.

Sr. No	Practical/Tutorial/Laboratory Learning Outcome (LLO)	Laboratory Experiment / Practical Titles /Tutorial Titles	Number of hrs.	Relevant COs
1	<p><b>LLO 1.1</b> Use the measurement of vertical and horizontal division to draw the female fashion figure of the given head dimension</p> <p><b>LLO 1.2</b> Draw quick proportionate female sketch in different poses</p> <p><b>LLO 1.3</b> Sketch varies poses, view, hand and legs position of female fashion figure by changing balance line of body</p>	<p><b>Human Anatomy</b></p> <p>Illustrate quick sketch female with different poses hairstyle and face features</p> <ul style="list-style-type: none"> <li>• Front View</li> <li>• Rear View</li> <li>• Profile View</li> <li>• ¾ View</li> </ul>	04	CO1
2	<p><b>LLO 2.1</b> Use the measurement of vertical and horizontal division to draw the female fashion figure of the given head dimension</p> <p><b>LLO 2.2</b> Draw quick proportionate male sketch in different poses</p> <p><b>LLO 2.3</b> Sketch varies poses, view, hand and legs position of female fashion figure by changing balance line of body</p>	<p>Illustrate quick sketch male with different poses hairstyle and face features</p> <ul style="list-style-type: none"> <li>• Front View</li> <li>• Rear View</li> <li>• Profile View</li> <li>• ¾ View</li> </ul>	04	CO1
3	<p><b>LLO 3.1</b> Use the measurement of vertical and horizontal division to draw the female fashion figure of the given head dimension</p> <p><b>LLO 3.2</b> Draw quick proportionate Kid sketch in different poses</p> <p><b>LLO 3.3</b> Sketch varies poses, view, hand and legs position of female fashion figure by changing balance line of body</p>	<p>Illustrate quick sketch Kid (boy/girl) with different poses hairstyle and face features</p> <ul style="list-style-type: none"> <li>• Front View</li> <li>• Rear View</li> <li>• Profile View</li> <li>• ¾ View</li> </ul>	04	CO1
4	<p><b>LLO 4.1</b> Identify the stylized croquie using weight distribution</p> <p><b>LLO4.2</b> Develop various proportionate stylized croquie using weight distribution.</p> <p><b>LLO 4.3</b> Illustrate and render female proportionate stylized croquie using weight distribution</p>	<p>Illustrate and Render Female proportionate stylized croquie using weight distribution (Minimum one each)</p> <ul style="list-style-type: none"> <li>• S</li> <li>• Z</li> <li>• X</li> <li>• I</li> </ul>	04	CO1
5	<p><b>LLO 5.1</b> Identify the process parameters for Gestalt Law.</p> <p><b>LLO 5.2</b> Develop prints using gestalt law principles.</p> <p><b>LLO 5.3</b> Render the given print using principles of Gestalt Law.</p>	<p><b>Gestalt law-</b></p> <p>Draw and render print using principles of Gestalt law (Minimum two each)</p> <ul style="list-style-type: none"> <li>• Similarity</li> <li>• Proximity</li> <li>• Continuity</li> <li>• Closure</li> <li>• Focal Point</li> </ul>	04	CO2



6	<p><b>LLO 6.1</b> Develop different pattern for female through draping.</p> <p><b>LLO 6.2</b> Illustrate the detail of the garments for the draped sample.</p> <p><b>LLO 6.3</b> Identify a suitable media for rendering the designed sample</p> <p><b>LLO 6.4</b> Render the given female sample using suitable media</p>	<p><b>Live Sketching</b> Live Sketch female garment (Minimum one) (Drape-Sketch-Render)</p> <p>Drape on dummy - plain/printed/knit/brocade/non-woven material. Combination of any two material)</p> <p>Sketch- Garment details, gathers, pleats, silhouette, fold, drape, shadow, etc.</p> <p>Render-Using suitable color scheme</p>	06	CO3
7	<p><b>LLO 7.1</b> Develop different pattern for male through draping.</p> <p><b>LLO 7.2</b> Illustrate the detail of the garments for the draped sample.</p> <p><b>LLO 7.3</b> Identify a suitable media for rendering the designed sample</p> <p><b>LLO 7.4</b> Render the given male sample using suitable media</p>	<p><b>Live Sketch male garment (Minimum one)</b> (Drape-Sketch-Render)</p> <p>Drape on dummy - plain/printed/knit/brocade/non-woven material. Combination of any two material)</p> <p>Sketch- Garment details, gathers, pleats, silhouette, fold, drape, shadow, etc.</p> <p>Render-Using suitable color scheme</p>	05	CO3
8	<p><b>LLO 8.1</b> Develop different pattern for kid through draping.</p> <p><b>LLO 8.2</b> Illustrate the detail of the garments for the draped sample.</p> <p><b>LLO 8.3</b> Identify a suitable media for rendering the designed sample</p> <p><b>LLO 8.4</b> Render the given kid sample using suitable media</p>	<p><b>Live Sketch Kid garment (Minimum one)</b> (Drape-Sketch-Render)</p> <p>Drape on dummy - plain/printed/knit/brocade/non-woven material. Combination of any two material)</p> <p>Sketch- Garment details, gathers, pleats, silhouette, fold, drape, shadow, etc.</p> <p>Render-Using suitable color scheme</p>	05	CO3
9	<p><b>LLO 9.1</b> Identify and collect different art forms and Painting</p> <p><b>LLO 9.2</b> Study its color, texture, print and special feature.</p> <p><b>LLO 9.3</b> Align the Collage neatly using page composition.</p>	<p><b>Inspiration Board</b> Collage creation (Manual /Computerized)</p> <p>Specify the color, texture, design, repetition, special feature of art form,etc (whichever is applicable)</p> <p>Art Forms -</p> <ul style="list-style-type: none"> <li>• Baroque art / Romanticism art</li> <li>• Rococo art/Modern art</li> </ul>	06	CO4

		<ul style="list-style-type: none"> <li>• Abstract art</li> <li>• Victorian art/Edwardian art/ Prehistoric art</li> <li>• Medieval art/Photorealism art/ Surrealism art</li> </ul> <p>Painting (Any One)</p> <ul style="list-style-type: none"> <li>• Warli Painting</li> <li>• Mandala art Painting</li> <li>• Gond Painting</li> <li>• Kalamkari Painting</li> </ul>		
10	<p><b>LLO 10.1</b> Identify the accessories (Handbag/scarf/headgear/footwear) suitable for given sample.</p> <p><b>LLO 10.2</b> Use Baroque art for print and texture to design accessory for given female.</p> <p><b>LLO 10.3</b> Use Romanticism art for print and texture to design accessory for given female.</p> <p><b>LLO 10.4</b> Render the designed accessory using Baroque art and Romanticism art.</p>	<p><b>Accessories</b> Design Accessories for female (Any one)</p> <ul style="list-style-type: none"> <li>• Handbag</li> <li>• Scarf</li> <li>• Headgear</li> <li>• Footwear</li> </ul> <p>Render the Accessory using print and texture inspired from Baroque art and Romanticism art.</p>	04	CO4
11	<p><b>LLO 11.1</b> Identify the accessories (headgear/footwear) suitable for male sample.</p> <p><b>LLO 11.2</b> Use Rococo art for print and texture to design accessory for given female.</p> <p><b>LLO 11.3</b> Use Modern art for print and texture to design accessory for given female.</p> <p><b>LLO 11.4</b> Render the designed accessory using Rococo art and Modern art.</p>	<p>Design Accessories for male (Any one)</p> <ul style="list-style-type: none"> <li>• Headgear</li> <li>• Footwear</li> </ul> <p>Render the Accessory using print and texture inspired from</p> <ul style="list-style-type: none"> <li>• Rococo art</li> <li>• Modern art</li> </ul>	04	CO4
12	<p><b>LLO 12.1</b> Identify the accessories (headgear/footwear) suitable for kid sample.</p> <p><b>LLO 12. 2</b> Use Abstract art for print and texture to design accessory for given kid.</p> <p><b>LLO 12. 3</b> Render the designed accessory using Abstract art.</p>	<p>Design Accessories for kid (Any one)</p> <ul style="list-style-type: none"> <li>• Headgear</li> <li>• Footwear</li> </ul> <p>Render the Accessory using print and texture inspired from Abstract art</p>	04	CO4
13	<p><b>LLO 13.1</b> Sketch the garment based on fashion forecasting</p> <p><b>LLO 13.2</b> Design print based on</p>	<p><b>Garment Designing</b> Design and Render any one garment for female using print/motif inspired from</p>	04	CO4

	<p>inspiration from Victorian art/Edwardian art/Prehistoric art for the given female.  <b>LLO 13.3</b> Identify suitable media for rendering the print based on Victorian art/Edwardian art/Prehistoric art for the given female.  <b>LLO 13.4</b> Render the print based on inspiration from Victorian art/Edwardian art/Prehistoric art for the given female.</p>	<p>Victorian art/Edwardian art/Prehistoric art.                  (Garment template is permissible, Inspiration can be interchangeable)</p>		
14	<p><b>LLO 14.1</b> Sketch the garment based on fashion forecasting  <b>LLO 14.2</b> Design print based on inspiration from medieval art/photorealism art/surrealism art for the given male.  <b>LLO 14.3</b> Identify suitable media for rendering the given garment  <b>LLO 14.4</b> Render the given garment using print inspired from medieval art/photorealism art/surrealism art for the given male.</p>	<p>Design and Render any one garment for male using print/motif inspired from medieval art/photorealism art/surrealism art.                  (Garment template is permissible, Inspiration can be interchangeable)</p>	04	CO4
15	<p><b>LLO 15.1</b> Sketch the given garment based on Fashion Forecasting  <b>LLO 15.2</b> Design the given garment using inspiration from traditional Indian painting motif, color combination and design  <b>LLO 15.3</b> Identify suitable media for rendering the given garment using inspiration from traditional Indian painting motif, color combination and design.  <b>LLO 15.4</b> Render the given garment using inspiration from traditional Indian painting motif, color combination and design.</p>	<p>Illustrate a stylized croquis with garment inspired from Any one of the following <b>(IKS)</b></p> <ul style="list-style-type: none"> <li>• Warli Painting</li> <li>• Mandala art Painting</li> <li>• Gond Painting</li> <li>• Kalamkari Painting</li> </ul>	02	CO5
<p>Note : All the above practical are compulsory and should be performed by individual students (Group of 3-4 wherever applicable)</p>				

**V. SUGGESTED MICRO PROJECT/ASSIGNMENT/ACTIVITIES FOR SPECIFIC LEARNING/SKILLS DEVELOPMENT (SELF-LEARNING)**

**Micro project**

- Prepare a booklet (Manual/Computerized) based on fashion forecasting for traditional, historic print and texture.
- Visit to Museum/Art Exhibition and prepare a detail report of five page including images.

**Assignment**

- Collect different stylized poses for male, female and Kids (Five poses each)
- Develop cardboard template for male, female and Kids stylized poses. (Two each)
- Collect images of draped garment for male, female and Kids based on fashion forecasting. (Five Each)

**VI. LABORATORY EQUIPMENT/INSTRUMENTS/TOOLS/SOFTWARE REQUIRED**

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	<b>Drawing Table/Board:</b> Ms steel square pipe 16 gauge, stands with powder coating painted. Knobs for adjustments, with standard size top.	All
2	<b>Color Medias:</b> Poster colors, Water colors, Pencil colors 12/24 shades (Any new media available in market), and all drawing materials	All
3	<b>Brushes:</b> Round and Flat Brushes 0 no.to 12 No.	All

**VII. ASSESSMENT**

**METHODOLOGIES/TOOLS**

Formative assessment (Assessment for Learning)	Summative Assessment (Assessment of Learning)
<ul style="list-style-type: none"> <li>• Lab. Performance -Term Work</li> </ul>	<ul style="list-style-type: none"> <li>• End semester Practical Exam</li> </ul>

**VIII. SUGGESTED COs- POs MATRIX FORM**

Course Outcomes (COs)	Programme Outcomes ( POs )							Programme Specific Outcomes *(PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2
CO1	3	-	-	-	-	-	1	-	-
CO2	3	-	-	-	2	2	2	-	2
CO3	2	-	-	-	-	-	2	-	3
CO4	3	-	-	-	-	-	2	-	2
CO5	3	-	-	-	-	-	2	-	2

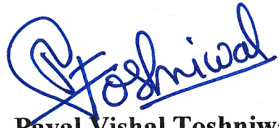
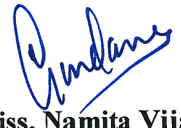


**Legends:- High:03, Medium:02, Low:01, No Mapping: -**  
 \*PSOs are to be formulated at the institute level

## IX. SUGGESTED LEARNING MATERIALS/BOOKS

Sr. No	Author	Title	Publisher
1	Suhita Shirodkar and Suhag Shirodkar	Art of India: A Wander india Drawing & Colouring Book	Grantha Corporation 978-1935677772
2	Patrick John Ireland	Fashion Design Illustration Women	B.T.Batsford ISBN10:0713466227
3	Suzan Meller & Joost Elffers	Textile Design	Harry N. Abrams ISBN10:0810938537
4	Kathryn Mckelvy	Fashion Source Book	Wilei Blackwell ISBN10:06.32039930
5	Bina Abling	Advanced sketch book	Fairchild books ISBN 81-8710-738-3
6	Sandraj Keser, myrnab Garner	Beyond Fashion	Phaidon Press ISBN10: 1609012267
7	Johannes Itten, Van Nostrand Reinhold Company, New York, Cincinnal, Toronto, London, Melborne	The Elements of Colour	John Wiley and sons ISBN 0-442-24038-4
8	Loan Oet, Cecile De Kegel	Elements of Design Rediscovering Colours, Textures, Forms and Shapes	Thames & Hudson Ltd, London ISBN:9780500383394
9	Pat Dews, Ohio	Creative Composition and Design	North Light books ISBN:9784440317361
10	John Irland	Fashion Design Drawing & presentation	B.T.Batsford ISBN 0713435194
11	Dave Ploutle	Art Appreciation Hardcover	Cognella Academic ISBN:978. 1516555796
12	Anna L. Dallapiccola	Indian Painting. The Lesser-Known Traditions	Niyogi Books ISBN:9788189738815

## XII. LEARNING WEBSITES &amp; PORTALS

Sr.No	Link/Portal	Description
1.	<a href="https://monoskop.org/images/4/46/Itten_Johannes_The_Elements_of_colors.pdf">https://monoskop.org/images/4/46/Itten_Johannes_The_Elements_of_colors.pdf</a>	Color and Shapes
2.	<a href="https://www.youtube.com/watch?v=99zNSnPJ04E">https://www.youtube.com/watch?v=99zNSnPJ04E</a>	Fashion Sketch
3.	<a href="https://www.youtube.com/watch?v=zqMtkEP6E71">https://www.youtube.com/watch?v=zqMtkEP6E71</a>	Male Figure Sketch Video
4	<a href="https://www.youtube.com/watch?v=NJmr9a2_Bcc">https://www.youtube.com/watch?v=NJmr9a2_Bcc</a>	Kid Figure Sketch Video
5	<a href="https://www.youtube.com/watch?v=gVYqhBE0hHk">https://www.youtube.com/watch?v=gVYqhBE0hHk</a>	Rococo art movement Video
6	<a href="https://www.youtube.com/watch?v=nPL-Mm9v8ck">https://www.youtube.com/watch?v=nPL-Mm9v8ck</a>	Modern art movement video
7	<a href="https://www.youtube.com/watch?v=ExobbmMnIWU">https://www.youtube.com/watch?v=ExobbmMnIWU</a>	Prehistoric Arts Videos
8	<a href="https://en.wikipedia.org/wiki/Medieval_art">https://en.wikipedia.org/wiki/Medieval_art</a>	Medieval Arts Link
9	<a href="https://blog.mojarto.com/indian-artistry-10-distinct-types-of-paintings-in-india/">https://blog.mojarto.com/indian-artistry-10-distinct-types-of-paintings-in-india/</a>	Indian Painting
10	<a href="https://www.interaction-design.org/literature/topics/gestalt-principles#:~:text=Gestalt%20principles">https://www.interaction-design.org/literature/topics/gestalt-principles#:~:text=Gestalt%20principles</a>	Principle of Gestalt Law

<p>Name &amp; Signature:</p>  <p><b>Mrs. Payal Vishal Toshniwal</b> Lecturer DDGM (Course Expert)</p>	<p>Name &amp; Signature:</p>  <p><b>Miss. Namita Vijay Gondane</b> Lecturer DDGM (Course Expert)</p>
<p>Name &amp; Signature:</p>  <p><b>Shri. S.S. Prabhune</b> (CDC In-charge)</p>	<p>Name &amp; Signature:</p>  <p><b>Shri. S.B. Kulkarni</b> (CDC In-charge)</p>





## GOVERNMENT POLYTECHNIC, PUNE

'120 – NEP' SCHEME

PROGRAMME	DIPLOMA IN CE/EE/ET/ME/MT/CM/IT/DDGM
PROGRAMME CODE	01/02/03/04/05/06/07/08
COURSE TITLE	ETHICAL SOURCING AND SUSTAINABILITY
COURSE CODE	DD41201
PREREQUISITE COURSE CODE & TITLE	NA

## I. LEARNING &amp; ASSESSMENT SCHEME

Course Code	Course Title	Course Category/s	Learning Scheme						Credits	Paper Duration	Assessment Scheme										Total Marks
			Actual Contact Hrs./Week			SLH	NLH	Theory			Based on LL & TSL				Based on SL						
			CL	TL	LL						Practical				SLA						
											FA-TH	SA-TH	Total		FA-PR	SA-PR	Max	Min			
DD41201	ETHICAL SOURCING AND SUSTAINABILITY	AEC	3	0	0	0	3	1.5	02	30	70*#	100	40	00	00	00	00	00	00	00	100

## Total IKS Hrs for Sem.: 0 Hrs

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, \*# Online Examination, @\$ Internal Online Examination

Note:

1. FA-TH represents an average of two class tests of 30 marks each conducted during the semester.
2. If a candidate is not securing minimum passing marks in FA-PR of any course, then the candidate shall be declared as "Detained" in that semester.
3. If the candidate is not securing minimum passing marks in SLA of any course, then the candidate shall be declared a failure and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL) hrs.\* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. \* Self learning hours shall not be reflected in the Timetable.
7. \* Self learning includes micro project / assignment / other activities

## II. RATIONALE:

This course is aimed at creating awareness amongst the students about global level commitment towards sustainable development. The course also creates awareness of the ethical manner of production, including the supply chain, the environmental and social impacts of the production process and product as well as the safety and fair deal towards the workforce involved at all levels.

## III. COURSE LEVEL LEARNING OUTCOMES (CO's)

Students will be able to achieve & demonstrate the following COs on completion of course based learning.

CO1: Interprets the concept of ethical sourcing and fundamentals of Sustainability.

CO2: Apply ethical and sustainable practices in fashion supply chain.

CO3: Explore Global Sustainable Development Goals (SDG).

CO4: Appreciate Recycling processes and fashion needs and consumption.

CO5: ♦ Use ethical and sustainable practices in garment production. standards and production methods.



**III. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT**

Sr. No	Theory Learning Outcomes (TLO'S) aligned to CO's.	Learning content mapped with TLO's.	Suggested Learning Pedagogies	Relevant COs
<b>UNIT 1 – PRINCIPLES OF ETHICAL SOURCING AND SUSTAINABILITY (CL HRS. – 12, Marks 14)</b>				
1.	TLO 1.1 Define Ethical Sourcing TLO 1.2 Explain Basic Eight Principles of Ethical Sourcing. TLO 1.3 State the laws of industrial ethics. TLO 1.4 Explain the policies of industrial ethics. TLO 1.5 Define Sustainability and ethical Sourcing. TLO 1.6 Explain the principles of sustainability. TLO 1.6 Explain the need and challenges of environmental sustainability. TLO 1.7 Compare Social sustainability and economic sustainability. TLO 1.8 Explain the agenda of 2030 sustainable development goals	1.1 Definition- Ethical Sourcing 1.2 Basic Eight Principles of sustainability 1.3 Policies of sustainability 1.4 Benefits-Importance of Ethics 1.5 Challenges- Causes of Unethical Behavior 1.6 Laws of Ethical Practices 1.7 Definition-Sustainability 1.8 Ethical Sourcing and Sustainability 1.9 Twelve green engineering principles. 1.10 Benefits and Challenges of sustainability 1.11 Types of Sustainability 1.12 Human Sustainability 1.13 Social Sustainability 1.14 Economic Sustainability 1.15 Environmental Sustainability	Presentations Chalk Board Case Study Video Demonstrations	<b>CO1</b>
<b>UNIT 2 – ETHICAL AND SUSTAINABLE SUPPLY CHAIN (CL HRS. -12, MARKS- 14)</b>				
2	TLO 2.1 State the use of three P's and Es of sustainability. TLO 2.2 Explain the ways to reduce waste by simplifying supply chain processes with appropriate example. TLO 2.3 Comment on existing environmental risks caused by the traditional non sustainable manufacturing process. TLO 2.4 Explain the ways to decrease fossil fuel consumption by optimizing routes with appropriate example.	2.1 Three P's- 2.1.1 Profit 2.1.2 Planet 2.1.3 People 2.2 Three E's- 2.2.1 Environment 2.2.2 Equity 2.3.3 Economics 2.3 Study of Six Steps for supply- 2.3.1 Reduce waste by simplifying supply chain processes. 2.3.2 Ensure ethical sourcing and introduce transparency. 2.3.3 Minimize overproduction through efficient supply and demand planning. 2.3.4 Decrease fossil fuel consumption by optimizing routes. 2.3.5 Fully utilize containers and transportation to consolidate shipments. 2.3.6 Monitor existing environmental risks.	Presentations Chalk Board Case Study Video Demonstrations	<b>CO2</b>

<b>UNIT 3 – Sustainable Development Goals (CL Hrs. -08, Marks- 14)</b>			
<b>3</b>	<p>TLO 3.1 Explain the agenda of 2030 sustainable development goals.</p> <p>TLO 3.2 Describe impact of SDG Goals on public life.</p> <p>TLO3.3 Outline the factors that cause impact on Peoples life.</p>	<p><b>3.1 Introduction of Sustainable Development Goals (SDGs)-</b></p> <p>Goal1: No Poverty Goal2: Zero Hunger Goal3: Good Health and Well-Being Goal4: Quality Education Goal5: Gender equality Goal6: Clean water and sanitation Goal7: Affordable and clean energy Goal8: Decent work and economic growth Goal9: Industry Innovation and infrastructure Goal10: Reduced in equality. Goal11: Sustainable cities and communities Goal12: Responsible consumption and production Goal13: Climate action Goal14: Life below water Goal15: Life on land Goal16: Peace and justice strong institutions Goal17: Partnerships for the Goals.</p>	<p>Presentations Chalk Board Case Study Video Demonstrations</p> <p style="text-align: center;"><b>CO3</b></p>
<b>UNIT 4 – Role of 6 Rs in Sustainability (CL Hrs. -08, Marks- 14)</b>			
<b>4</b>	<p>TLO 4.1 Explain the impact of material selection over the environment.</p> <p>TLO 4.2 Describe the factors to be considered for material selection to optimize performance.</p> <p>TLO 4.3 Illustrate Life cycle assessment with appropriate example.</p> <p>TLO 4.4 Give a note on Production of green manufacturing materials with appropriate example.</p> <p>TLO 4.5 Explain the role of 6 Rs in sustainable development.</p> <p>TLO 4.6 Outline waste management strategies.</p> <p>TLO 4.7 Describe cradle to Cradle concept.</p>	<p><b>4.1 Role of 6 Rs for Sustainable Development</b></p> <p>4.1.1 Refuse / Reject 4.1.2 Reduce 4.1.3 Reuse / Repurpose / Rethink 4.1.4 Repair 4.1.5 Recycle 4.1.6 Rethink</p> <p><b>4.2 Fashion needs and consumptions</b></p> <p>4.2.1 Fashion based on values. 4.2.2 Human needs and consumption 4.2.3 sustainability and its impact 4.2.4 Distinctiveness 4.2.5 Design for recycling and disassembly 4.2.6 Zero waste pattern cutting 4.2.7 Cradle to Cradle 4.2.8 Design for recycling and disassembly 4.2.9 Waste management strategies</p>	<p>Presentations Chalk Board Case Study Video Demonstrations</p> <p style="text-align: center;"><b>CO4</b></p>

UNIT 5–Ethical, sustainable designers and brands (CL Hrs.-08, Marks- 14)				
5	TLO 5.1 Analyze value based on consumption. TLO 5.2 State the impact of sustainability on fashion. TLO 5.3 State the importance of Locally made craft. TLO 5.4 Describe Ethical and Sustainable product standards. TLO 5.5 Explain principles of zero waste fashion. TLO5.6 State importance of Sustainable packaging	5.1 Ethical and Sustainable product standards 5.2 Nonpolluting product 5.3 Origin of product 5.4 Principles of zero fashion 5.5 Information Sustainable product brands. 5.6 Sustainable product packaging methods.	Presentations Chalk Board Case Study Video Demonstrations	CO5

#### IV. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL/TUTORIAL EXPERIENCES. -NA

#### V. SUGGESTED MICRO PROJECT/ASSIGNMENT/ACTIVITIES FOR SPECIFIC LEARNING/SKILLS DEVELOPMENT (SELF-LEARNING)- NA

➤ SLA NOT APPLICABLE

#### VI. LABORATORY EQUIPMENT/INSTRUMENTS/TOOLS/SOFTWARE REQUIRED- NA

#### VII. SUGGESTED FOR WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr. No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Principles of Ethical Sourcing and Sustainability	CO1	12	10	02	02	14
2	II	Ethical and Sustainable Supply Chain	CO2	12	08	03	03	14
3	III	Sustainable Development Goals	CO3	08	10	02	02	14
4	IV	Role of 6 Rs in Sustainability	CO4	08	09	03	02	14
5	V	Ethical, sustainable designers and brands	CO5	08	09	03	02	14
<b>Grand Total</b>				<b>48</b>	<b>46</b>	<b>13</b>	<b>11</b>	<b>70</b>

#### VIII. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)	Summative Assessment (Assessment of Learning)
1. Progressive Test	1. End Term Examination (Theory)

## IX. SUGGESTED COs- POs MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes *(PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Lifelong Learning	PSO-1	PSO-2
CO1	-	-	-	-	03	-	01	-	01
CO2	-	-	-	-	03	-	01	-	01
CO3	-	01	-	-	03	-	01	-	01
CO4	-	-	-	-	03	-	01	-	01
CO5	-	01	02	-	03	-	01	-	01

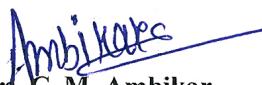

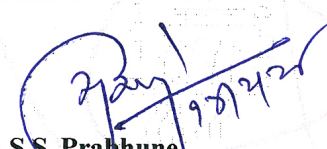

**Legends: - High:03, Medium:02, Low:01, No Mapping: -**  
\*PSOs are to be formulated at the institute level

## X. SUGGESTED LEARNING MATERIALS/BOOKS

Sr.No	Author	Title	Publisher
1	Kate Fletcher	Sustainable Textiles and Fashions design Journey	Routledge Park 2 park Square, Milton Park, Abingdon, Oxon, OX14 4RN ISBN -978-0-415-64455-6 (hbk)
2	Miguel Gardetti & Ana Laura Torres	Sustainability in fashion and Textiles- Values, Design Consumption and Production	Routledge- 1 edition (2013 March) ISBN-10-1906093784 ISBN-13-978-1906093785
3	Sandy Black	Eco -Chic the fashion paradox- Sandy Black	Black Dog, University of Michigan, ISBN-10-906155097 ISBN-13-9781906155904
4	William McDonough & Michel Braungart	Cradle to Cradle	Publisher -Vinatage (29 January 2009) ISBN-10-0099535475 ISBN-13-978-099535478
5	Rob Harrison	The Handbook of Ethical Purchasing: Principles and Practice	ISBN:9781032059952
6	Julia Connell, Renu Agarwal Sushil, Sanjay Dhir	Global Value Chains, Flexibility and Sustainability	ISBN:978-981-10-8929-9
7	David.B.Grant	Sustainable logistics Supply Chain Management	ISBN:9780749473860

## XII. LEARNING WEBSITES &amp; PORTALS

Sr.No	Link/Portal	Description
1.	<a href="https://www.coffee-partners.org/sustainable-development-goals?mtm_campaign=icp-search&amp;mtm_source=google&amp;mtm_medium=cpc&amp;gclid=Cj0KCQIAhomtBhDgARIsABcaYyl8wLq7_2VTmJWyTsHDse85EprAr2KCAV Hav UYGDuBwzzWEwamykaAjKdEALw_wcB">https://www.coffee-partners.org/sustainable-development-goals?mtm_campaign=icp-search&amp;mtm_source=google&amp;mtm_medium=cpc&amp;gclid=Cj0KCQIAhomtBhDgARIsABcaYyl8wLq7_2VTmJWyTsHDse85EprAr2KCAV Hav UYGDuBwzzWEwamykaAjKdEALw_wcB</a>	SDG Goals
2.	<a href="https://consciousfashion.co/guides/india-sustainable-fashion-brands">https://consciousfashion.co/guides/india-sustainable-fashion-brands</a>	Sustainable fashion brands
3.	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9036301/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9036301/</a>	Biomimicry
4.	<a href="https://www.dbs.com/sustainability/sustainable-operations/dbs-sustainable-sourcing-principles">https://www.dbs.com/sustainability/sustainable-operations/dbs-sustainable-sourcing-principles</a>	Sustainability principles
5.	<a href="https://arrowuniforms.co.nz/blogs/stay-sharp-blog/the-pillars-of-sustainability#:~:text=Sustainability%20is%20broken%20into%20four,info%20what%20these%20pillars%20cover.">https://arrowuniforms.co.nz/blogs/stay-sharp-blog/the-pillars-of-sustainability#:~:text=Sustainability%20is%20broken%20into%20four,info%20what%20these%20pillars%20cover.</a>	Types of Sustainability

Name & Signature:		Name & Signature:	
 Mrs. C. M. Ambikar Lecturer - DDGM		 Ms. N. V. Gondane Lecturer - DDGM	
Name & Signature:		Name & Signature:	
 Mr. S.S. Prabhune (Programme Head)		 Shri. S.B. Kulkarni (CDC In-charge)	



## GOVERNMENT POLYTECHNIC, PUNE

### ‘120 – NEP’ SCHEME

<b>PROGRAMME</b>	<b>DIPLOMA IN CE/EE/ET/ME/MT/CM/IT/DDGM</b>
<b>PROGRAMME CODE</b>	<b>01/02/03/04/05/06/07/08</b>
<b>COURSE TITLE</b>	<b>PROFESSIONAL COMMUNICATION</b>
<b>COURSE CODE</b>	<b>HU11202</b>
<b>PREREQUISITE COURSE CODE &amp; TITLE</b>	<b>NA</b>

#### I. LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Course Type	Learning Scheme						Credits	Paper Duration	Assessment Scheme										Total Marks
			Actual Contact Hrs./Week			SL	H	NLH			Theory			Based on LL & TSL				Based on SL			
			CL	TL	LL						Total	Practical		SLA							
												FA-TH	SA-TH	FA-PR	SA-PR	Max	Min				
Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min										
HU11202	PROFESSIONAL COMMUNICATION SKILLS (PCO)	SEC	-	-	2	-	2	1	-	-	-	-	-	25	10	25@	10	-	-	50	

**Total IKS Hrs for Sem. : 0 Hrs**

**Abbreviations:** CL- Classroom Learning, TL- Tu tutorial Learning, LL-Laboratory Learning, SL H-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS – Indian Knowledge System, SLA - Self Learning Assessment.

**Legends:** @ Internal Assessment, # External Assessment, \*# OnLine Examination, @\$ Internal Online Examination.

**Note :**

1. FA-TH represents the average of two class tests of 30 marks each conducted during the semester.
2. If the candidate does not secure minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If the candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.\* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
- 6.\* Self-learning hours shall not be reflected in the timetable.
- 7.\* Self-learning includes micro-projects/assignments / other activities.

#### II. RATIONALE:

Communication is key to the smooth and efficient functioning of any industry or business. Professional communication is the need of every organization to maintain ethics, quality and standards. The efficacy of business communication skills is essential for engineering professionals to instruct, guide and motivate peers/ subordinates to achieve desired goals at the workplace. Thus, this course has been designed to enhance professional communication skills for effective presentation both in written and oral forms at the workplace.

#### III. COURSE-LEVEL LEARNING OUTCOMES (CO'S):

Students will be able to achieve and demonstrate the following COs on completion of course-based learning

- CO1 - Communicate effectively (oral and written) in various formal and informal situations minimizing the barriers.
- CO2 - Develop listening skills through active listening and note-taking.
- CO3 - Write the circulars, notices and minutes of the meeting.
- CO4 - Draft enquiry letter, complaint letter, and Job application with resume / CV, Compose effective Emails.
- CO5 - Write Industrial reports.

**IV. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT:**

Sr. No	Theory Learning Outcomes (TLO'S) aligned to CO's.	Learning content mapped with TLO's.	Suggested Learning Pedagogies	Relevant COs
<b>UNIT-I PROFESSIONAL COMMUNICATION: AN OVERVIEW</b>				
1	<p>TLO 1.1 Describe the importance of professional communication in given situations.</p> <p>TLO 1.2 Identify the types of communication barriers in given situations and suggest remedies.</p> <p>TLO 1.3 Use different types of verbal and non-verbal communication for the given situation.</p>	<p>1.1 Definition of professional communication- Importance, relevance, Elements and process of communication,7 C's of Professional Communication (Clarity, Conciseness, correctness, coherent, concrete, courteous &amp; Complete).</p> <p>1.2 Communication barriers, Types of barriers (Linguistic, Psychological, Technological).</p> <p>1.3 Types of Communication- Verbal (Oral-Written), Formal, Informal (Grapevine) and Vertical Comm.</p>	<p>Language lab, Role plays, Chalkboard, Reference books, Case studies.</p>	<b>CO1</b>
<b>UNIT - II LISTENING &amp; NOTE-TAKING</b>				
2	<p>TLO 2.1 Identify the difference between listening and hearing.</p> <p>TLO 2.2 Differentiate the types of listening in various situations.</p> <p>TLO 2.3 Take notes during lectures and seminars. Make use of types of note-taking and note-making for different subjects/topics.</p>	<p>2.1 Difference between listening &amp; Hearing.</p> <p>2.2 Types of listening a)Active listening b)Passive listening c)Selective listening.</p> <p>2.3 Techniques of Note-taking, Types of note taking (Outline notes, Mind Mapping, Flowcharts).</p>	<p>Language Lab, Classroom learning, NPTEL, Role Play.</p>	<b>CO2</b>
<b>UNIT - III OFFICE DRAFTING</b>				
3	<p>TLO 3.1 Prepare notices/agenda for the given type of meeting/information.</p> <p>TLO 3.2 Prepare minutes of meeting/s.</p> <p>TLO 3.3 Draft a circular for a particular information/event.</p>	<p>3.1 Format of Notice, Drafting Agenda.</p> <p>3.2 Preparing Minutes of the meeting.</p> <p>3.3 Format of Circular.</p>	<p>Whiteboard, Language Lab, Reference books, Classroom learning.</p>	<b>CO3</b>
<b>UNIT - IV WRITING SKILLS FOR PROFESSIONAL COMMUNICATION</b>				
4	<p>TLO 4.1 Compose cover letter and CV / Resume for jobs.</p> <p>TLO 4.2 Apply E-mail Etiquettes for professional purposes.</p> <p>TLO 4.3 Compose Emails for different official purposes.</p>	<p>4.1 Job Application with Resume / CV.</p> <p>4.2 E-Mail Etiquettes.</p> <p>4.3 Writing official E-Mails to communicate intended purposes.</p>	<p>Language lab, Classroom learning NPTEL, Reference books.</p>	<b>CO4</b>



Sr. No	Theory Learning Outcomes (TLO'S) aligned to CO's.	Learning content mapped with TLO's.	Suggested Learning Pedagogies	Relevant COs
<b>UNIT - V REPORT WRITING</b>				
5	TLO 5.1 Compose technical reports. TLO5.2 Draft accident and Investigation.	5.1 Introduction to report writing 5.2 Accident Report and Investigation Report.	Chalk and talk, Language Lab, Collaborative learning, Classroom learning.	<b>CO5</b>

#### V. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL /TUTORIAL EXPERIENCES.

Sr. No	Practical/Tutorial/Laboratory Learning Outcome (LLO)	Laboratory Experiment / Practical Titles /Tutorial Titles	Number of hrs.	Relevant COs
1	*LLO 1.1 Draw the communication cycle using real-life examples and explain the process of communication.	Communication Process and Cycle	2	CO1
2	LLO 2.1 Undertake the Roleplay / Group discussion to illustrate types/barriers to communication.	Role plays and Group Discussion	2	CO1
3	*LLO 3.1 Listen to audio in the language lab and make notes of it.	Active Listening	2	CO2
4	*LLO 4.1 Give a presentation / Seminar using the 7 C's of Communication.	Presentations / Seminars	2	CO1
5	*LLO 5.1 Explain the types of note-taking with examples and make notes on any one topic related to your curriculum.	Note taking & Note Making	2	CO2
6	*LLO 6.1 Prepare agenda for meeting and draft minutes of the meeting.	Agenda and Minutes of the Meeting	2	CO3
7	*LLO 7.1 Draft circulars for the given situation.	Office Drafting	2	CO3
8	*LLO 8.1 Respond to job advertisements referring to newspapers, and LinkedIn. Write a cover letter with a resume /CV.	Job Application with Resume / CV	2	CO4
9	*LLO 9.1: Write Four (formal) E-mails using ethics and etiquette.	E-Mail writing.	2	CO4
10	*LLO 10.1: Write a detailed report on the Accident/ Investigation.	Technical Report writing	2	CO5
11	*LLO 11.1: Prepare a case study related to linguistic barriers: language pronunciation, punctuation, and technical jargon and suggest remedies for the same.	Barriers to Communication	2	CO1

Sr. No	Practical/Tutorial/Laboratory Learning Outcome (LLO)	Laboratory Experiment / Practical Titles /Tutorial Titles	Number of hrs.	Relevant COs
12	LLO 12.1: draft complaint/enquiry letter for various situations.	Complaint and Enquiry letter	2	CO4
13	LLO 13.1: List psychological barriers to communication. LLO 13.2 Prepare case studies on any two psychological barriers and suggest remedies to overcome the barriers.	Psychological barriers to Communication.	2	CO1
14	*LLO 14.1 - Draw a flow chart and mind mapping for any topic related to the curriculum.	Listening Skills.	2	CO2
15	*LLO 15.1 - Face mock interview arranged by your teacher.	Job Application, Resume / CV & Interview.	2	CO4

**Note:**

- "\*" marked practicals are compulsory for coverage of all course outcomes.
- The remaining practicals are recommended to provide enhanced skills/abilities.
- Any 12 assignments out of 15 are compulsory

**Note:**

Only one micro-project is planned to be undertaken by a student that needs to be assigned to him/her at the beginning of the semester. She/he ought to submit it by the end of the semester to develop the industry-oriented COs. Each micro-project should encompass two or more COs. The micro-project could be industry application-based, internet-based, workshop-based, laboratory-based or field-based. Each student will have to maintain a dated work diary consisting of individual contributions to the project work and give a seminar presentation of it before submission. The total duration of the micro-project should not be less than 15 (fifteen) student engagement hours during the course. In the first four semesters, the micro-project could be group-based. However, in higher semesters, it should be individually undertaken to build up the skill and confidence in every student to become a problem solver so that s/he contributes to the projects of the industry. A suggestive list is given here. Similar micro-projects could be added by the concerned faculty.

## VI. SUGGESTED MICRO PROJECT/ASSIGNMENT/ACTIVITIES FOR SPECIFIC LEARNING/SKILLS DEVELOPMENT (SELF-LEARNING)

### Micro project

- Conduct an interview of any person and follow the procedure ( interview questions, photo with the interviewee etc.)
- Listening and Speaking are lifelong learnings. Explain with appropriate examples and real-life case studies.
- Collect (four to five) emails with technical jargon, and barriers, make required corrections and keep a record of both the emails (original and Corrected one)
- Prepare a case study on Technological barriers to communication
- Complete any one certification course of (Two Weeks duration) from (MOOC/ NPTEL/ Coursera/ any other source)related to Communication Skills / Personality Development.
- Prepare a report on aspects of body language.

**VII. LABORATORY EQUIPMENT/INSTRUMENTS/TOOLS/SOFTWARE REQUIRED:**

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Language Lab with software with internet facility.	All
2	LCD Projector	All
3	Smart Board with networking.	All
4	Printer.	All

**VIII. SUGGESTED FOR WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE**

(Specification Table):

N.A.

**IX. ASSESSMENT METHODOLOGIES/TOOLS:**

Formative assessment (Assessment for Learning)	Summative Assessment (Assessment of Learning)
1. Term Work (FA-PR) 2. Micro-project.	1. Practical Exam of <b>25</b> marks using language lab. (SA-PR)

**X. SUGGESTED COs- POs MATRIX FORM:**

Course Outcomes (COs)	Programme Outcomes(POs)							Programme Specific Outcomes *(PSOs)		
	PO-1 Basic and Discipline-Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	-	-	-	-	-	-	1	-	-	-
CO2	-	-	-	-	-	-	1	-	-	-
CO3	-	-	-	-	-	-	1	-	-	-
CO4	-	-	-	-	-	-	1	-	-	-
CO5	-	-	-	-	-	-	1	-	-	-

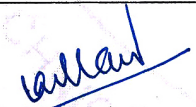
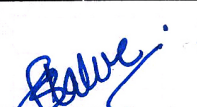
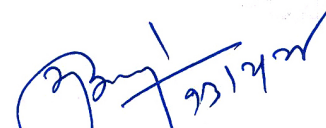

**Legends:- High:03, Medium:02, Low:01, No Mapping: -**  
\*PSOs are to be formulated at the institute level.

**XI.SUGGESTED LEARNING MATERIALS/BOOKS**

Sr.No	Author	Title	Publisher with ISBN Number
1	M Ashraf Rizvi	Effective Communication Skills	Tata McGraw-Hill Publication-ISBN 0070599521, 9780070599529
2	Sanjay Kumar and Pushp Lata	Communication Skills	Oxford University Press ISBN 9780199457069
3	MSBTE Textbook	Communication Skills	MSBTE
4	Robert King	Effective communication Skills	Audio Book -ISBN 978181667009742
5	N P Sudharshana, C Savitha	English for Technical Communication	Cambridge-ISBN 978-13-16640-08-1
6	C. Murlikrishna, Sunita Mishra	Communication Skills for Engineers	Pearson - ISBN 978-81-317-3384-4
7	Meenakshi Raman, Sangeeta Sharma	Technical Communication, Principles and Practice	Oxford University Press -ISBN 978-1316640-08-1
8	K. K. Sinha	Business Communication	Galgotiya Publishing company, New Delhi ISBN 9789356227064
9	Rajendra Pal, J.S. Korlahalli	Essentials of Business Communication	Sultan Chand & Sons, New Delhi ISBN 9788180547294

**XIII. LEARNING WEBSITES & PORTALS**

Sr.No	Link / Portal	Description
1	<a href="https://www.britishcouncil.in">https://www.britishcouncil.in</a>	Conversations
2	<a href="https://www.coursera.org">https://www.coursera.org</a>	Certification courses
3	<a href="https://www.udemy.com">https://www.udemy.com</a>	Communication skills training courses
4	<a href="http://www.makeuseof.com">http://www.makeuseof.com</a>	Dale Carnegie's free resources

<b>Name &amp; Signature:</b>  <b>Mr. V.V. Kulkarni</b> Lecturer in English		<b>Name &amp; Signature:</b>  <b>Dr. S.P. Palve</b> Lecturer in English	
<b>(Course Experts)</b>			
<b>Name &amp; Signature:</b>  <b>Shri. S.S. Prabhune</b> (Programme Head)		<b>Name &amp; Signature:</b>  <b>Shri. S.B. Kulkarni</b> (CDC In-charge)	



GOVERNMENT POLYTECHNIC, PUNE

'120 - NEP' SCHEME

PROGRAMME	DIPLOMA IN CE/EE/ET/ME/MT/CM/IT/DDGM
PROGRAMME CODE	01/02/04/05/05/06/07/08
COURSE TITLE	YOUTH LEADERSHIP FOR CLIMATE ACTION
COURSE CODE	HU21202
PREREQUISITE COURSE CODE AND TITLE	NO

I. LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Course Type	Learning Scheme					Credits	Paper Duration Hrs.	Assessment Scheme										Total Marks	
			Actual Contact Hrs./Week			SLH	NLH			Theory			Based on LL & TSL				Based on SL				
			CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA			
						Max	Min					Max	Min	Max	Min	Max	Min				
HU21202	YOUTH LEADERSHIP FOR CLIMATE ACTION	VEC	-	-	-	2	2	1	-	-	-	-	-	-	-	-	-	-	50	20	50

Total IKS Hrs for Term: 0 Hrs

Abbreviations: CL-Classroom Learning, TL-Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS – Indian Knowledge System, SLA- Self Learning Assessment

Legends: @-Internal Assessment, # - External Assessment,\*# - Online Examination,@\$ - Internal Online Examination

Note:

1. FA-TH represents an average of two class tests of 30 marks each conducted during the semester.
2. If a candidate is not securing minimum passing marks in FA-PR (Formative Assessment - Practical) of any course, then the candidate shall be declared as 'Detained' in that semester.
3. If a candidate does not secure minimum passing marks in SLA (Self Learning Assessment) of any course, then the candidate shall be declared as 'fail' and will have to repeat and resubmit SLA work.
4. Notional learning hours for the semester are (CL + LL + TL + SL) hrs. \* 15 Weeks
5. 1 credit is equivalent to 30 Notional hours.
6. \* Self-learning hours shall not be reflected in the Timetable.
- 6.\*Self-learning includes micro-projects/assignments/other activities.

II. RATIONALE:

Climate change is a global phenomenon that transcends borders. Climate change poses significant threats to biodiversity, ecosystems, and natural resources. Its impacts, such as rising temperatures, extreme weather events, and sea-level rise, affect communities worldwide. Addressing climate change is a collective responsibility to safeguard the planet and its ecosystems for current and future generations. Climate change exacerbates social and economic inequalities, affecting vulnerable communities disproportionately. With increasing climate risks, and exposure to hazards, citizens need to improve clean and green skills.

Mitigating climate change and taking climate action is essential for preserving the Earth's biodiversity, maintaining ecosystem services, and ensuring the sustainability of vital resources upon which human societies depend. By taking climate action, societies can enhance resilience, reduce vulnerability, and promote social and economic stability. Sustainable practices help protect, preserve, and sustain the environment, as well as stimulate economic growth in sectors such as renewable energy and energy efficiency.

Climate action involves transitioning to more sustainable and resource-efficient practices. This includes adopting clean energy sources, improving energy efficiency, and promoting circular economies. Imparting skills to the human resources in the clean and green sectors is also a climate action. Such measures not only mitigate climate change but also contribute to the efficient use of resources and the reduction of environmental degradation.

The national, state, and multilateral efforts, such as the Mission Life, State Climate Action Planning, Paris Agreement, etc. provide a framework for countries to work together in reducing greenhouse gas emissions, adapting to climate impacts, and fostering technology transfer for sustainable development.

**III. COURSE-LEVEL LEARNING OUTCOMES ( CO's)**

Students will be able to achieve & demonstrate the following COs on completion of course-based learning

**CO1:** Demonstrate a comprehensive understanding of the science behind climate change, its causes, and its impacts on the environment, economy and society.

**CO2:** Understand the principles of water resource management (WRM), water conservation and its application in the context of climate change.

**CO3:** Understand the relationship between climate change and waste management, including the issues and impacts of waste management practices on greenhouse gas emissions.

**CO4:** Demonstrate a comprehensive understanding of energy systems, including sources, distribution, and consumption patterns

**CO5:** Advocate for and implement energy conservation practices at individual, community, and organizational levels to reduce overall energy demand.

**CO6:** Develop a comprehensive understanding of the intricate interconnections between biodiversity and climate, and recognize the reciprocal impacts each has on the other.

**IV. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT:**

Sr. No	Theory Learning Outcomes(TLO'S) aligned to COs.	Learning content mapped with TLOs.	Suggested Learning Pedagogies	Relevant COs
<b>UNIT-I LIVING WITH CLIMATE CHANGE</b>				
<b>SUBUNIT 1: CLIMATE CHANGE PHENOMENON AND SCIENCE</b>				
1.1	<p><b>TLO 1.1.1</b> Able to articulate the fundamental differences between weather and climate</p> <p><b>TLO 1.1.2</b> Understanding of the basic principles of climate change, including the greenhouse effect, human-induced factors, and the consequences of a warming planet.</p> <p><b>TLO 1.1.3</b> Able to define the concept of a carbon footprint, understanding it as the total amount of greenhouse gases.</p>	<p>1.1.1 Understanding Climate: Weather versus Climate</p> <p>1.1.2 Climate and the Greenhouse Effect</p> <p>1.1.3 Natural and Human-induced Climate Change</p> <p>1.1.4 Carbon footprint</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	1
<b>SUB UNIT 2: CLIMATE CHANGE IMPACTS</b>				
1.2	<p><b>TLO 1.2.1</b> Grasp the foundational science behind climate change, including the greenhouse effect, human-induced emissions, and the role of feedback mechanisms in global warming.</p> <p><b>TLO 1.2.2</b> Identify and analyze key indicators of climate change, such as rising global temperatures, changing precipitation patterns, sea level rise, and the frequency of extreme weather events.</p> <p><b>TLO 1.2.3</b> Understand the diverse climate patterns across India's biogeographic regions, including the Himalayas, Indo-Gangetic Plains, Western Ghats, Eastern Ghats, Deccan Plateau, and coastal regions.</p>	<p>1.2.1 Global impacts and uncertainties</p> <p>1.2.2 Effects on India and its various biogeographic regions</p> <p>1.2.3 Impacts on livelihoods and economy: Agriculture and Horticulture</p> <p>1.2.4 Impacts on Vulnerable Communities: Fishing Communities</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	1

## SUB UNIT 3: CLIMATE ACTION

1.3	<p><b>TLO1.3.1</b> Understand the concept of climate change mitigation and adaptation and its role in preparing for and responding to the impacts of climate change.</p> <p><b>TLO1.3.2</b> Understand the concept of sustainable development and its three dimensions: economic, social, and environmental.</p> <p><b>TLO1.3.3</b> Identify and articulate the connections between climate change impacts and existing social, economic, and environmental inequalities.</p> <p><b>TLO1.3.4</b> Understand the importance of community-based climate action and initiatives led by local communities in India.</p> <p><b>TLO 1.3.5</b> Understand the concepts of green skills and green work, emphasizing their role in promoting sustainability and environmentally conscious practices in various industries.</p>	<p>1.3.1 Mitigation and Adaptation 1.3.2 Intergovernmental processes 1.3.3 Sustainable Development Goals 1.3.4 Climate Justice 1.3.5 India's journey towards Climate Action 1.3.6 Majhi Vasundhara and Other Initiatives 1.3.7 Role of Individuals 1.3.8 Green Skills and Green Work</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	2
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## UNIT-II WATER MANAGEMENT FOR CLIMATE CHANGE

## SUB UNIT 1: THE NEED OF WATER MANAGEMENT AND CONSERVATION

2.1	<p><b>TLO 2.1.1</b> Understand the concept of water management and its significance in addressing water-related challenges.</p> <p><b>TLO 2.1.2</b> Describe the water cycle and its role in the distribution and availability of water.</p> <p><b>TLO 2.1.3</b> Identify regions facing water scarcity and understand the factors contributing to water shortages.</p> <p><b>TLO 2.1.4</b> Analyze patterns of human water consumption and its impact on local and global water resources.</p> <p><b>TLO 2.1.5</b> Examine water quality issues, including pollution sources, contaminants, and their effects on ecosystems and human health.</p> <p><b>TLO 2.1.6</b> Recognize the role of community engagement in water conservation efforts and sustainable water management practices.</p> <p><b>TLO 2.1.7</b> Understand the</p>	<p>2.1.1 Water - the basis of life. 2.1.2 The water cycle and freshwater availability. 2.1.3 Water use in India and the importance of groundwater. 2.1.4 Water Resources in Maharashtra. 2.1.5 Use of water in our lives. 2.1.6 Virtual Water. 2.1.7 Traditions of water use and management. 2.1.8 Water Quality - an important dimension. 2.1.9 Wastewater: a problem and a potential resource.</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	2
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	concept of wastewater and Identify and analyze the sources of pollutants in wastewater, including industrial discharges, agricultural runoff, and urban sewage.			
<b>SUB UNIT 2: ISSUES AND CHALLENGES IN WATER MANAGEMENT</b>				
2.2	<p><b>TLO 2.2.1</b> Understand the concept of water stress and its implications for a region's ability to meet water demand for various purposes.</p> <p><b>TLO 2.2.2</b> Explore the role of agriculture in water stress, including irrigation practices, cropping patterns, and the impact of changing agricultural practices.</p> <p><b>TLO 2.2.3</b> Understand the concept of water pollution and differentiate between various types of pollutants affecting water bodies.</p> <p><b>TLO 2.2.4</b> Understand the environmental, ecological, and public health impacts of different pollutants in water, such as nutrients, heavy metals, pathogens, and synthetic chemicals.</p> <p><b>TLO 2.2.5</b> Identify common waterborne diseases, such as cholera, typhoid, dysentery, and gastroenteritis, and understand their causative agents.</p> <p><b>TLO 2.2.6</b> Define the challenges associated with inadequate sanitation, including issues related to open defecation, lack of access to sanitary facilities, and the impact on public health.</p>	<p>2.2.1 Water Stress in India.</p> <p>2.2.2 Water resources limitation and increasing use.</p> <p>2.2.3 Water stress in agriculture.</p> <p>2.2.4 Water pollution and contamination.</p> <p>2.2.5 Health impacts of poor water quality.</p> <p>2.2.6 Water management and climate change.</p> <p>2.2.7 The global challenge of water and sanitation.</p> <p>2.2.8 Summary - causes of water stress.</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	2
<b>SUB UNIT 3: TOWARDS SUSTAINABLE WATER MANAGEMENT</b>				
2.3	<p><b>TLO 2.3.1</b> Understand and define the concept of sustainable water management, considering its ecological, social, and economic dimensions.</p> <p><b>TLO 2.3.2</b> Understand the significant initiatives launched by the Government of India/State government which focuses on water resources and management.</p>	<p>2.3.1 Towards sustainable water management</p> <p>2.3.2 Swachh Bharat - The Mission for a Clean India</p> <p>2.3.3 Jal Jeevan Mission - Water for All</p> <p>2.3.4 Atal Bhujal Yojana - Replenish Groundwater</p> <p>2.3.5 Mission Amrit Sarovar - Rejuvenate Water bodies</p> <p>2.3.6 Jalyukt Shivar Abhiyan - Waterscapes.</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	2

**SUB UNIT 4: INDIVIDUAL AND COMMUNITY ACTIONS FOR WATER AND WASTEWATER MANAGEMENT**

2.4	<p><b>TLO 2.4.1</b> Understand the concept of a water audit and its significance in assessing water use, efficiency, and conservation.</p> <p><b>TLO 2.4.2</b> Analyze water use patterns in common household activities, including bathing, washing dishes, laundry, and gardening.</p> <p><b>TLO 2.4.3</b> Understand the definition of greywater and Recognize common sources of greywater in households, including bathroom sinks, showers, bathtubs, and washing machines.</p> <p><b>TLO 2.4.4</b> promote awareness within communities about the benefits of greywater management and its potential impact on water conservation.</p> <p><b>TLO 2.4.5</b> Understand the concept of rainwater harvesting and its significance in sustainable water management.</p> <p><b>TLO 2.4.6</b> Learn different methods used to calculate rainwater harvesting potential</p>	<p>2.4.1 Conduct water audits</p> <p>2.4.2 Save water at home</p> <p>2.4.3 Promote greywater management at home and in the community</p> <p>2.4.4 Spread the word on sustainable water management</p> <p>2.4.5 Calculate Rainwater Harvesting Potential.</p>		2
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**UNIT III: WASTE MANAGEMENT AND CLIMATE ACTION**

**SUBUNIT 1: WHAT IS WASTE?**

3.1	<p><b>TLO 3.1.1</b> Understand the term "domestic waste" and distinguish it from other types of waste generated in different contexts.</p> <p><b>TLO 3.1.2</b> Classify domestic waste into different categories such as organic waste, recyclables, hazardous waste, and non-recyclables.</p> <p><b>TLO 3.1.3</b> Learn various methods used to quantify household waste, including direct measurement, sampling, and estimation techniques.</p> <p><b>TLO 3.1.4</b> Identify specific waste patterns associated with different generations and lifestyles</p> <p><b>TLO 3.1.5</b> Understand the Sustainable Development Goals (SDGs)</p>	<p>3.1.1 Define and enlist types of waste</p> <p>3.1.2 List the components of domestic waste</p> <p>3.1.3 Differentiate between biodegradable and non-biodegradable waste</p> <p>3.1.4 Assess the quantum of waste generated at home</p> <p>3.1.5 Changes in Waste generation over human generations</p> <p>3.1.6 Review lifestyle choices</p> <p>3.1.7 SDGs and Link of Waste with SDGs</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	3
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	<b>TLO 3.1.6</b> Analyze the critical role of waste management in achieving multiple SDGs			
<b>SUBUNIT 2: ISSUES IN WASTE MANAGEMENT</b>				
3.2	<p><b>TLO 3.2.1</b> Emphasizing waste impact on the environment, human health, and overall sustainability.</p> <p><b>TLO 3.2.2</b> Identify health risks associated with improper waste disposal, such as the spread of diseases and exposure to hazardous materials.</p> <p><b>TLO 3.2.3</b> Analyze how waste, particularly organic waste in landfills, contributes to greenhouse gas emissions and climate change.</p>	<p>3.2.1 Why is waste an issue?</p> <p>3.2.2 Health impacts from mismanagement of waste</p> <p>3.2.3 Work conditions of waste workers</p> <p>3.2.4 Waste of natural resources and increased greenhouse gas emissions</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	3
<b>SUBUNIT 3: APPROACHES TO WASTE MANAGEMENT</b>				
3.3	<p><b>TLO 3.3.1</b> Clearly define the waste management hierarchy</p> <p><b>TLO 3.3.2</b> Waste management hierarchy role in guiding sustainable waste management practices such as source reduction, reuse, recycling, energy recovery, and disposal.</p>	<p>3.3.1 Hierarchy of waste management</p> <p>3.3.2 Waste segregation at source</p> <p>3.3.3 Reduce, Reuse, Recycle and Recover</p> <p>3.3.4 Recycling of waste materials</p> <p>3.3.5 Principle of circular economy</p> <p>3.3.6 Avoiding waste by design</p> <p>3.3.7 Composting</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	3
<b>SUBUNIT 4: LEGISLATIONS RELATED TO WASTE MANAGEMENT</b>				
3.4	<p><b>TLO 3.4.1</b> Familiarize yourself with major national and international legislation related to waste management.</p> <p><b>TLO 3.4.2</b> Define Extended Producer Responsibility (EPR) and explain its concept in the context of environmental management.</p> <p><b>TLO 3.4.3</b> Define biomedical waste and distinguish it from other types of waste. Identify the various sources and types of biomedical waste generated in healthcare facilities.</p>	<p>4.1 Municipal Solid Waste Management Rules 2016</p> <p>4.2 Plastic Waste Management Rules</p> <p>4.3 Extended Producer Responsibility (EPR)</p> <p>4.4 Biomedical Waste Management</p> <p>4.5 Preventive Measures for Manual Scavenging</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	3
<b>SUBUNIT 5: ACTION FOR IMPROVING WASTE MANAGEMENT</b>				
3.5	<p><b>TLO 3.5.1</b> Develop skills in data collection methods for waste assessment, such as waste audits, surveys, and interviews.</p>	<p>5.1 Waste assessment in your community or town</p> <p>5.2 Setting up a compost unit</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	3

<p><b>TLO 3.5.2</b> Analyze collected data to identify patterns, trends, and areas for improvement in waste management practices.</p> <p><b>TLO 3.5.3</b> Define composting and explain the biological processes involved in the decomposition of organic matter.</p> <p><b>TLO 3.5.4</b> Explore different composting methods, such as aerobic and anaerobic composting, and choose the most suitable technique for the compost unit.</p> <p><b>TLO 3.5.5</b> Explore different biogas production technologies, such as continuous stirred tank reactors (CSTR) and anaerobic digesters.</p>	<p>5.3 Biogas: Is it a possibility?</p>		
<b>UNIT IV: ENERGY MANAGEMENT AND CLIMATE ACTION</b>			
<b>SUBUNIT 1: ENERGY IN OUR LIVES</b>			
<p><b>4.1 TLO 4.1.1</b> Identify the key principles of efficient energy use and conservation.</p> <p><b>TLO 4.1.2</b> Familiarize yourself with different energy sources, including renewable and non-renewable options.</p> <p><b>TLO 4.1.3</b> Understand the connection between energy production, consumption, and climate change.</p> <p><b>TLO 4.1.4</b> Understand India's commitments to sustainable energy at the national and international levels, including agreements</p>	<p>4.1.1 Energy and quality of life 4.1.2 Sources of energy 4.1.3 Energy and C Change 4.1.4 Judicious use of non-renewable energy resources 4.1.5 A Just Transition 4.1.7 India's commitment to sustainable energy 4.1.8 Policies and Programs for Energy Management 4.1.9 Clean Energy for Cooking</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	4

**SUBUNIT 2: YOUTH ACTION TO IMPROVE ENERGY MANAGEMENT**

4.2	<p><b>TLO 4.2.1</b> Recognize the role of youth in driving positive change in energy management.</p> <p><b>TLO 4.2.2</b> Understand how youth-led initiatives can influence energy policies, behaviours, and practices.</p> <p><b>TLO 4.2.3</b> Identify and promote energy-efficient practices in daily life, schools, and communities.</p>	<p>4.1.1 Avoid energy wastage</p> <p>4.2.2 Energy-efficient appliances</p> <p>4.2.3 Renewable Energy-Specific Policies and Schemes</p> <p>4.2.4 Low Carbon Lifestyles book</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	4
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**SUBUNIT 3: PROMOTE SUSTAINABLE ENERGY AT HOME, INSTITUTION AND IN THE COMMUNITY**

4.3	<p><b>TLO 4.3.1</b> Identify and calculate energy requirements at the household level and enlist ways of efficient energy usage</p> <p><b>TLO 4.3.2</b> Identify opportunities for improving public energy use in their village or town</p> <p><b>TLO 4.3.3</b> Design surveys that effectively capture data on energy-efficient appliance availability and usage patterns.</p> <p><b>TLO 4.3.4</b> Identify and analyze emerging technologies within the energy sector that require specialized skills.</p> <p><b>TLO 4.3.5</b> Demonstrate the ability to map existing skills within the energy sector workforce.</p> <p><b>TLO 4.3.6</b> Analyze skill gaps and their implications for the industry.</p>	<p>4.3.1 Energy audit at home or institution</p> <p>4.3.2 Energy saving opportunities</p> <p>4.3.3 Energy access survey</p> <p>4.3.4 Surveys of energy-efficient appliance availability and use</p> <p>4.3.5 Survey of renewable energy use</p> <p>4.3.6 Survey energy sector skilling opportunities</p> <p>4.3.7 Share study findings with policymakers</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	5
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**UNIT V: BIODIVERSITY CONSERVATION AND CLIMATE ACTION**

**SUBUNIT 1: BIODIVERSITY IN OUR LIVES**

5.1	<p><b>TLO 5.1.1</b> Understand the concept of biodiversity and its components</p> <p><b>TLO 5.1.2</b> Clearly define the concept of biocultural diversity, explaining the interconnectedness of biological diversity (biodiversity) and cultural diversity.</p> <p><b>TLO 5.1.3</b> Clearly define the concept of human dependence on biodiversity, outlining the various ways in which humans rely on</p>	<p><b>5.1.1</b> What is biodiversity?</p> <p><b>5.1.2</b> What is Biocultural diversity?</p> <p><b>5.1.3</b> Nature of Human Dependence on Biodiversity</p> <p><b>5.1.4</b> Biodiversity resources in your landscape</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	6
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	<p>diverse ecosystems for survival and well-being.</p> <p><b>TLO 5.1.4</b> Develop the ability to identify and categorize the various forms of biodiversity present in the specific landscape, including plants, animals, microorganisms, and their interactions.</p>			
<b>SUBUNIT 2: THREATS TO BIODIVERSITY</b>				
5.2	<p><b>TLO 5.2.1</b> Categorize and differentiate between natural and anthropogenic threats to biodiversity, including habitat loss, pollution, climate change, invasive species, and overexploitation.</p> <p><b>TLO 5.2.2</b> Clearly define the concepts of biocultural diversity and climate change, highlighting the interconnectedness between biological diversity, cultural diversity, and changing climatic conditions.</p>	<p><b>5.2.1 Threats to biodiversity</b></p> <p><b>2.2.2 Biocultural diversity and climate change</b></p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	6
<b>SUBUNIT 3: CONSERVING BIODIVERSITY</b>				
5.3	<p><b>TLO 5.3.1</b> Clearly define the concept of biodiversity conservation, emphasizing its importance in maintaining ecological balance and supporting human well-being.</p> <p><b>TLO 5.3.2</b> Explore the historical background that led to the development of forest acts, considering factors such as colonial influences, resource extraction, and changing societal attitudes towards forests.</p> <p><b>TLO 5.3.3</b> Clearly define the concept of biodiversity conservation actions, emphasizing the multifaceted approaches and strategies employed to protect and sustain biodiversity.</p>	<p><b>5.3.1</b> Approaches to conservation of biodiversity.</p> <p><b>5.3.</b> Key legislations for biodiversity conservation</p> <p><b>5.3.3</b> Actions for biodiversity conservation at various levels, including awareness raising and advocacy in the community</p>	<p>Video Lectures (Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a>)</p>	6

**Note: All above Units are Mandatory units. (In Online mode, only Units nos 1 and 2 are Mandatory and units nos 3,4, and 5 are Elective/optional)**

**V. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL/TUTORIAL EXPERIENCES.**

NOT APPLICABLE

VI. SUGGESTED MICROPROJECT/ASSIGNMENT/ACTIVITIES FOR SPECIFIC LEARNING/SKILLS DEVELOPMENT (SELF-LEARNING)

Table 01: Individual Activities

Sr. No	Unit Name	Activity	Activity Details
1	Living with Climate Change	Calculation of your carbon footprint online	To Calculate your carbon footprint online at <a href="https://www.unfccc.int/">https://www.unfccc.int/</a> <a href="https://www.carbonfootprint.com/">https://www.carbonfootprint.com/</a> Use two carbon footprint calculators available online to Prepare your report for Carbon footprint. Compare the calculators used and suggest which is the better calculator with the reasons.
2	Water Management and Climate Action	Conducting water audits	To conduct a Personal-level water audit. 1. Track your overall water usage: a) Read your water meter, b) Estimate usage without a meter 2. Measure individual fixture flow rates: a) Faucet and showerhead flow b) Toilet flush: 3. Monitor your water habits: a) Keep a water use log b) Observe your routines 4. Analyze your findings: a) Compare your usage to benchmarks, b) Identify potential leaks c) Prioritize areas for improvement 5. Implement water-saving strategies: a) Install water-efficient fixtures b) Shorten showers and bath times c) Run appliances only when full d) Fix leaky faucets promptly e) Utilize alternative water sources
3	Waste Management and Climate Action	Surveying Home waste	To find out How much waste is generated in your home every day conduct a home survey for a week Analyze as per the following: a) What makes up the maximum part of the waste? b) How much of what was thrown out could have been reused or recycled? c) Could the amount of garbage be reduced? List the ways to reduce waste at home. Calculate: a) Waste generated over a week (in grams) divided by 7= waste (gms)/ day, b) Waste (gms)/ day divided by the number of persons in your house= Waste (gms)/ day/capita Using your survey results, you can calculate the approximate waste generated by the entire population of a block of flats, township, village, town, city, etc.
4	Energy Management and Climate Action	Preparation of Survey report on energy-efficient appliances.	To prepare a Survey report on energy-efficient appliances, their availability and use. 1. Availability of Energy-Efficient Appliances: 2. Use of Energy-Efficient Appliances 3. Government Policies and Incentives 4. Technological Advancements 5. Environmental Impact and Consumer Trends
5	Biodiversity Conservation and Climate Action	Preparation of a Survey report on Biodiversity resources in your landscape	To prepare a Survey report on Biodiversity resources in your landscape based on any one point among the list given below. 1. List of trees, plants, and shrubs in the village/ town outskirts, their classification, occurrence, and usage study. 2. Draw a biocultural map of the landscape of the village/ town, the diversity of trees (mother trees) and those who maintain it 3. A village called Tree: Understand a tree as an ecosystem and the biodiversity associated with the tree. 4. Ranmeva special study 5. Dietary diversity across three generations, a 'change over time' study.

Table 2: Group Activity

Sr. No.	Unit Name	Community Project Name	Activity Details
1.	Living with Climate Change	Conduction of Feasibility Study of Renewable Energy	Conduct a feasibility study on implementing renewable energy sources (such as solar, wind, or hydroelectric power) for a specific area or institution. Analyze costs, benefits, environmental impacts, and logistics involved in transitioning to renewable energy.
2.	Water Management and Climate Action	Preparation of water audit for the college campus.	To prepare a water audit for the college campus based on the following points 1. Gather Information: 2. Identify Water Use Areas: 3. Assess Indoor Water Usage: 4. Evaluate Outdoor Water Usage: 5. Measurements and Inspections: 6. Data Analysis: 7. Recommendations for Conservation: 8. Cost-Benefit Analysis: 9. Create an Action Plan: 10. Implementation and Monitoring: 11. Educational Outreach: 12. Documentation and Reporting:
3.	Waste Management and Climate Action	Conduction of survey on Waste assessment in your locality.	1. Conduct a survey of waste management systems in your town/locality. Observe all the stages of waste management, and note who is involved at each stage viz. Waste collection Transport Processing in different ways Disposal etc. 2. Analysis of waste management in your /locality. 3. Assessment of Waste Segregation in your /locality.
4	Energy Management and Climate Action	Conduction of energy audit at home or Institute	To conduct an energy audit at home or Institute based on the following points. Analyze your findings based on the energy audit and suggest necessary actions to minimize energy consumption. 1. Gather information and Create a checklist about the following. <b>1. Lighting:</b> <ul style="list-style-type: none"> <li>• Turn off lights in unoccupied rooms.</li> <li>• Replace incandescent bulbs with LEDs</li> <li>• Utilize natural light whenever possible</li> </ul> <b>2. Heating and Cooling:</b> <ul style="list-style-type: none"> <li>• Set your thermostat to energy-efficient temperatures (25°C in summer, 20°C in winter)</li> <li>• Seal air leaks around windows and doors.</li> <li>• Clean or replace air filters regularly.</li> </ul> <b>3. Appliances:</b> <ul style="list-style-type: none"> <li>• Unplug electronics and chargers when not in use.</li> <li>• Wash clothes and dishes in cold water whenever possible.</li> <li>• Use energy-efficient appliances when purchasing new ones</li> </ul> <b>4. Insulation:</b> <ul style="list-style-type: none"> <li>• Check your attic and basement for proper insulation.</li> <li>• Seal any gaps or cracks around pipes and vents.</li> </ul> <b>5. Suggest corrective actions.</b>



Sr. No.	Unit Name	Community Project Name	Activity Details
5.	Biodiversity Conservation and Climate Action	Preparation of report on Bio-Cultural Diversity Conservation	Prepare a report on Bio-Cultural Diversity Conservation. The report should include : <b>a) Introduction</b> i) What is biodiversity? ii) What is its importance in our life? iii) Connections of human beings with their nonliving surrounding and with living forms. <b>b) Biodiversity resources in your landscape -:</b> List of trees, plants, and shrubs in the village/ town outskirts, their classification, occurrence, and usage study. <b>c) Understand a tree as an ecosystem and the biodiversity associated with the tree.</b>

**Note: (1) Individual activities:**

The student should complete **any Three activities** among the list given in Table No. 01. above. ( **Total Marks: 30 i.e. 10 Marks for each activity**)

**(2) Group activity:**

Students should complete **any One Community Project** among the list given in Table No. 02 above. (**Total Marks: 20**)

**VII. LABORATORY EQUIPMENT/INSTRUMENTS/TOOLS/SOFTWARE REQUIRED**

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	NIL ( SLA Course)	NIL

**VIII. SUGGESTED FOR WEIGHTAGE TO LEARNING EFFORTS & AND ASSESSMENT PURPOSE**

(Specification Table)

NOT APPLICABLE

**IX. ASSESSMENT METHODOLOGIES/TOOLS**

Formative assessment (Assessment for Learning)	Summative Assessment (Assessment of Learning)
Individual activities and group activities. (50 marks)	Online Examination and issue of online certificate. (Total 4 Certificates)

**Note: Student will be awarded 1 credit only upon submission of certificates**

- i) **One Certificate on combined completion of Units 1 and 2 and**
- ii) **One Certificate each on completion of Units nos. 3,4, and 5.**

**A total of 4 Certificates are needed to be submitted which will be issued online along with the submission of Individual activities and Group activities.**

## X. SUGGESTED COs- POs MATRIX FORM

NOT APPLICABLE

## XI. SUGGESTED LEARNING MATERIALS/BOOKS

Sr.No	Description	Mode	Remarks
1	Learning material.	Learning material is available in PDF form	Learning material is available for all units in PDF form at the institute website.

## XII. LEARNING WEBSITES &amp; PORTALS

Sr.No	Web Link /Portal	Description
1	(Online Mode: Link <a href="https://www.mahayouthnet.in/">https://www.mahayouthnet.in/</a> )	Learning material is available online in the course menu after registration for this online course for all units.

## XIII. ROLE OF STUDENT AND FACULTY:

## (a) ROLE OF STUDENT.

1. i) **Course Registration:** Students should register for this course by adopting the normal procedure for registration as applicable for other courses, as per the schedule declared in the academic calendar through his/her MIS login.

ii) **Online Registration:** Online registration for this Self-paced course "YOUTH LEADERSHIP FOR CLIMATE ACTION" in online mode by using the URL as under.

“ URL for online registration: <https://www.mahayouthnet.in/>

Students may join the course by scanning the QR Code as mentioned below.



**(Important Note: Students must complete both actions "a" and "b" as mentioned above. Merely completing the registration process in the Institute MIS will not get the student registered for this course.)**

2. Students should complete the **Module No. 01 and 02** of this course in online mode and complete the online assignments as available in the online module. Upon completion of these activities, the student will receive a certificate of completion for Units No. 1 and 2. (Will be generated Online from The portal)

3. Students should take up online **Module Nos. 03, 04 and 05** (which are available as "Elective Modules" in the same online module, No separate registration is needed for these modules) and complete all unit-wise assignments as available in the online module. Upon completion of these activities, students will receive a separate certificate of completion for each unit i.e. **Units 03,04 and 05** i.e. **three certificates**. (Will be generated Online from The portal)
  4. Student must submit all 4 certificates (first certificate upon completing units nos. 1 and 2 and individual certificates upon completing units nos 3,4 and 5. A Total 4 certificates are needed to be submitted to the concerned faculty assigned for this course by the Concerned Head of the Department)
  5. **Most Important Note regarding the award of 1 credit for this course: student must complete any 3 individual activities among the list of activities mentioned in table no 1 above AND must complete any 1 group activity AND submit all 4 certificates (generated in online mode upon completion of all 5 units in online study mode). Upon satisfying these conditions, the student will be awarded 1 credit for this course (SLA).**
7. **Detention/ Fail:**

The student shall be declared as "Detained" if he belongs to any of the following cases.

**Case 1:** If a candidate does not secure minimum passing marks in the SLA (Self Learning Assessment) course due to incomplete submission of assignments in offline mode despite producing 4 certificates from online mode, then the candidate shall be declared as "**Detained**" and will have to repeat and resubmit assignments in offline mode as SLA work in next semester.

**Case 2:** If a candidate does not submit 4 certificates from online mode though he/she has submitted all assignments in Offline mode, then the candidate shall be declared as "**Detained**" and will have to produce 4 certificates before the End-term Examination of the subsequent term.

**Case 3:** If a candidate fails to produce 4 certificates from online mode as well as fails to submit assignments in offline mode, then the candidate shall be declared as "**Detained**" and will have to repeat and resubmit assignments in offline mode as SLA work and he/she will be required to submit 4 certificates from the online mode in next semester.

**Most Important Note:** Students must complete any 3 individual activities among the list of activities AND must complete any 1 group activity AND submit all 4 certificates (generated in online mode upon completion of all 5 units in online study mode). Upon satisfying these conditions, the student will be awarded 1 credit for this course (SLA).


**(b) ROLE OF FACULTY:**

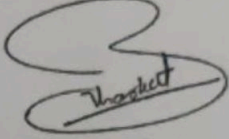
1. i) **Regarding confirmation of Course Registration:** Faculty should confirm that the course registration has been confirmed by the concerned registration in charge and HOD from their MIS login.
- ii) **Online Registration for the course:** Faculty should confirm that the student has registered for the course in online mode by scanning the QR code OR through the link provided by the portal for registering for the **Self-paced course "YOUTH LEADERSHIP FOR CLIMATE ACTION"** in online mode. Faculty should collect screenshots from the students and maintain a record of such screenshots for the concerned semester/term.
2. **Regarding submissions to be accepted:** The faculty should ensure that the student has completed all 5 modules as mentioned above. The faculty should get the 4 certificates (per student) submitted as submission against completion of the online self-paced course "**YOUTH LEADERSHIP FOR CLIMATE ACTION**" during the term/semester for which, the student have registered. Also, the Faculty should accept the submissions from each student regarding the completion of the group activities as well as individual activities as mentioned above. This activity of submission must be completed before the last date of submission for other courses. ie before the provisional detention schedule as per the academic calendar for that term.
3. **Regarding SLA assessment and allocation of Marks:** Faculty should assess the submission

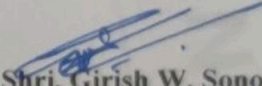
with following guidelines.

- i) Upon submission of online generated all 4 certificates (upon completion of online modules from the portal), the student should be considered eligible for the award of 1 credit along with satisfying the following conditions. ( Faculty must not assess the individual activities and group activities if the student fails to submit all 4 certificates as proof of completion of the online course)
- ii) Upon accepting the submission concerning individual activities and group activities, the assessment of these activities should be done by the faculty as per the assessment norms mentioned above in "VI" titled "SUGGESTED MICROPROJECT/ASSIGNMENT/ACTIVITIES FOR SPECIFIC LEARNING/SKILLS DEVELOPMENT (SELF-LEARNING)"
- iii) Faculty should preserve the record of student-wise allotted marks in the rubrics provided for SLA assessment.
- iv) FACULTY should fill UP the marks of the student in the MIS mark sheet, only if the student has completed the online course ( submitted all 4 certificates) and assessment of the group activities along with individual activities has been completed within the term schedule.
- v) In case the student fails to complete " iv" above, the faculty should fill up the marks obtained by the student for the part-submission and fill up those marks in the MIS mark sheet.

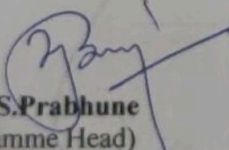
Name & Signature:

  
**Shri. Nitin D. Toradmal**  
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 Govt. Polytechnic, Pune

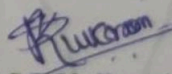
  
**Shri. Balaji Vharkat**  
 UNICEF, Maharashtra

  
**Shri. Girish W. Sonone**  
 Lecturer in Electronics  
 Govt. Polytechnic, Mumbai

Name & Signature:

  
**Shri.S.S.Prabhune**  
 (Programme Head)

Name & Signature:

  
**Shri.S.B.Kulkarni**  
 (CDC In-charge)