

Curriculum of Diploma Programme

in

Fashion & Clothing Technology



**Department of Science, Technology and Technical
Education (DSTTE), Govt. of Bihar**

**State Board of Technical Education
(SBTE), Bihar**

Semester –II

Teaching & Learning Scheme

Course Codes	Category of course	Course Titles	Teaching & Learning Scheme (Hours/Week)					
			Classroom Instruction (CI)		Lab Instruction (LI)	Notional Hours (TW+SL)	Total Hours (CI+LI+TW+SL)	Total Credits (C)
			L	T				
2451201	PCC	Basic Pattern Making for FCT	03	-	04	02	09	06
2450102	PCC	Figure & Garment Sketching	03	-	04	02	09	06
2400104	HSC	Communication Skills (English) (Common for all Programmes)	03	-	04	02	09	06
2418105	BCC	Fundamentals of IT and C Programming (ELX, ELX (R), AE, FCT, EE)	03	-	04	02	09	06
2400006	NRC	Environmental Education and Sustainable Development (Common for All Programmes)	01	-	01	01	03	02
2451206	PCC	Draping	-	-	02	04	06	03
2400207	NRC	Indian Constitution (Common for All Programmes)	01	-	-	-	01	01
Total			14	-	19	13	46	30

Note: Prefix will be added to Course Code if applicable (T for Theory, P for Practical Paper and S for Term Work)

Legend:

CI: Classroom Instruction (Includes different instructional/implementation strategies i.e. Lecture (L), Tutorial (T), Case method, Demonstrations, Video demonstration, Problem based learning etc. to deliver theoretical concepts)

LI: Laboratory Instruction (Includes experiments/practical performances /problem-based experiences in laboratory, workshop, field or other locations using different instructional/implementation strategies)

Notional Hours: Hours of engagement by learners, other than the contact hours for ensuring learning.

TW: Term work (includes assignments, seminars, micro projects, industrial visits, any other student activities etc.)

SL: Self Learning, MOOCs, spoken tutorials, online educational resources etc.

C: Credits = (1 x CI hours) + (0.5 x LI hours) + (0.5 x Notional hours)

Note: TW and SL have to be planned by the teacher and performed by the learner under the continuous guidance and feedback of teacher to ensure outcome of learning

Semester –II

Assessment Scheme

Course Codes	Category of course	Course Titles	Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Assessment (TA)		Term Work& Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Internal	External	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
2451201	PCC	Basic Pattern Making for FCT	30	70	20	30	20	30	200
2450102	PCC	Figure & Garment Sketching	30	70	20	30	20	30	200
2400104	HSC	Communication Skills (English) (Common for all Programmes)	30	70	20	30	20	30	200
2418105	BCC	Fundamentals of IT and C Programming (ELX, ELX (R), AE, FCT, EE)	30	70	20	30	20	30	200
2400006	NRC	Environmental Education and Sustainable Development (Common for All Programmes)	15	-	10	-	10	15	50
2451206	PCC	Draping	-	-	20	30	20	30	100
2400207	NRC	Indian Constitution (Common for All Programmes)	25	-	25	-	-	-	50
Total			160	280	135	150	110	165	1000

Note: Prefix will be added to Course Code if applicable (T for Theory, P for Practical Paper and S for Term Work)

Legend: PTA: Progressive Theory Assessment in classroom (includes class test, mid-term test and quiz using online/offline modes)

PLA: Progressive Laboratory Assessment (includes process and product assessment using rating Scales and rubrics)

TWA: Term work & Self Learning Assessment (Includes assessment related to student performance in assignments, seminars, micro projects, industrial visits, self-learning, any other student activities etc.

Note:

- ETA & ELA are to be carried out at the end of the term/ semester.
- Term Work is to be done by the students under the guidance of internal faculty but its assessment will be done internally (40%) as well as externally (60%). Assessment related to planning and execution of Term Work activities like assignment, micro project, seminar, and self-learning is to be done by internal faculty (Internal Assessment) whereas assessment of output/product/ presentation related to these activities will be carried out by external faculty/expert (External Assessment). However, criteria of internal as well as external assessment may vary as per the requirement of respective course.

For valid and reliable assessment, the internal faculty should prepare checklist & rubrics for these activities.

- A) **Course Code** : 2451201 (T2451201/P2451201/S2451201)
- B) **Course Title** : Basic Pattern Making for FCT
- C) **Pre- requisite Course(s)** :
- D) **Rationale** :

Pattern Making involves the process of taking measurements of dress form or human body and preparing the basic sloper patterns. These slopers are then used as a base to create patterns for complex designs. It provides a blueprint of design of the garment. It is a crucial skill for the students of Diploma in Fashion & Clothing Technology as it acts as a bridge between design and production. It serves as a common language between designers, pattern makers and apparel manufacturers. It enables the designer to transform his/ her design concept to three dimensional garments. It is a fundamental skill that empowers students to bring their creative vision to life and excel in their field. This course provides the students the essential skills of pattern making.

- E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following course outcomes by the learners. For this, the learners are expected to perform various activities related to three learning domains (Cognitive, Psychomotor and Affective) in classroom/laboratory/workshop/field/ industry.

After completion of the course, the students will be able to-

- CO-1** Measure the vertical and horizontal elements of body/ dress form accurately.
- CO-2** Prepare the basic sloper patterns as per the given measurements.
- CO-3** Develop pattern variations by using the techniques of Flat Pattern Making.
- CO-4** Develop patterns for different type of women's, Men's, Kid's wear.
- CO-5** Develop patterns for different type of necklines, collars, yokes & sleeves.

F) **Suggested Course Articulation Matrix (CAM):**

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
CO-1	3	-	-	1	-	-	1	-	-
CO-2	3	1	1	1	-	-	1	-	-
CO-3	3	2	2	1	-	1	1	-	-
CO-4	3	2	2	1	-	1	1	-	-
CO-5	3	2	2	1	-	1	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

* PSOs will be developed by respective programme coordinator at institute level. As per latest NBA guidelines, formulating PSOs is optional.

G) Teaching & Learning Scheme:

Course Code	Course Title	Scheme of Study (Hours/Week)					
		Classroom Instruction (CI)		Lab Instruction (LI)	Notional Hours (TW+ SL)	Total Hours (CI+LI+TW+SL)	Total Credits (C)
		L	T				
2451201	Basic Pattern Making for FCT	03	-	04	02	09	06

Legend:

CI: Classroom Instruction (Includes different instructional/implementation strategies i.e. Lecture (L), Tutorial (T), Case method, Demonstrations, Video demonstration, Problem based learning etc. to deliver theoretical concepts)

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C: Credits= (1xCIhours) + (0.5xLI hours) + (0.5xNotionalhours)

Note: TW and SL have to be planned by the teacher and performed by the learner under the continuous guidance and feedback of teacher to ensure outcome of learning.

H) Assessment Scheme:

Course Code	Course Title	Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
		Theory Assessment (TA)		Term Work& Self-Learning Assessment (TWA)		Lab Assessment (LA)		
		Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Internal	External	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
2451201	Basic Pattern Making for FCT	30	70	20	30	20	30	200

Legend:

PTA: Progressive Theory Assessment in classroom (includes class test, mid-term test and quiz using online/offline modes)

PLA: Progressive Laboratory Assessment (includes process and product assessment using rating Scales and rubrics)

TWA: Term work & Self Learning Assessment (Includes assessment related to student performance in assignments, seminars, micro projects, industrial visits, self-learning, any other student activities etc.)

Note:

- ETA & ELA are to be carried out at the end of the term/ semester.
- Term Work is to be done by the students under the guidance of internal faculty but its assessment will be done **internally (40%)** as well as **externally (60%)**. Assessment related to planning and execution of Term Work activities like assignment, micro project, seminar and self-learning is to be done by internal faculty (Internal Assessment) whereas assessment of output/product/presentation related to these activities will be carried out by external faculty/expert (External Assessment). However, criteria of internal as well as external assessment may vary as per the requirement of respective course. For valid and reliable assessment, the internal faculty should prepare checklist & rubrics for these activities.

- I) **Course Curriculum Detailing:** This course curriculum detailing depicts learning outcomes at course level and session level and their attainment by the students through Classroom Instruction (CI), Laboratory Instruction (LI), Term Work (TW) and Self Learning (SL). Students are expected to demonstrate the attainment of Theory Session Outcomes (TSOs) and Lab Session Outcomes (LSOs) leading to attainment of Course Outcomes (COs) upon the completion of the course. While curriculum detailing, NEP 2020 related reforms like Green skills, Sustainability, Multidisciplinary aspects, Society connect, Indian Knowledge System (IKS) and others must be integrated appropriately.

J) **Theory Session Outcomes (TSOs) and Units: T2451201**

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
<i>TSO 1a.</i> Explain the methods of Pattern Making. <i>TSO 1b.</i> Differentiate between drafting and flat patternmaking. <i>TSO 1c.</i> Differentiate between basic and final pattern. <i>TSO 1d.</i> Explain step by step the process of taking body measurements. <i>TSO 1e.</i> Describe the use of different tools required for pattern making. <i>TSO 1f.</i> Identify the given symbols used in pattern making <i>TSO 1g.</i> Enlist the measurements required for basic bodice sloper with sleeve, skirt sloper and trouser sloper. <i>TSO 1h.</i> Enumerate the points that should be taken care of while taking vertical, horizontal and girth measurements of human body. <i>TSO 1i.</i> Identify the pattern making tools for the given material.	Unit-1.0 Introduction to Pattern Making 1.1 Methods of Pattern Making: - Drafting. - Flat Pattern Making. - Draping. 1.2 Types of Pattern: Basic pattern, Working pattern and Final pattern. 1.3 Taking Body Measurements of Human Body and Dress Form. - Girth Measurements. - Vertical Measurements . - Horizontal Measurements. 1.4 Standard Body Measurement Chart for women's wear, kids wear and men's wear. 1.5 Tools and terminologies of Pattern making - Hip Curve, Grading ruler, French Curve, Scissors, Leg Curve, Tracing wheel, Measuring Tape, Notcher, Muslin, Dress form, Paper pattern, Selvedge, Grain line, L Square, Slopers , Single dart pattern, Two dart pattern, Seam allowance, Ease etc. 1.6 Symbols and abbreviations. 1.7 Pattern making tools and materials : Measuring Tools, Tracing Tool, Cutting Tools	CO1
<i>TSO 2a.</i> Enlist the basic sloper pattern set. <i>TSO 2b.</i> Write the step by step drafting of basic bodice sloper pattern (front and back) using the given body measurements. <i>TSO 2c.</i> Write the step by step drafting of basic sleeve sloper pattern (short, elbow and 3/4th length) using the given measurements. <i>TSO 2d.</i> Write the step by step drafting of basic skirt sloper pattern of the given measurement (front and back). <i>TSO 2e.</i> Write the step by step drafting of basic trouser sloper pattern of the given measurement (front and back).	Unit-2.0 Drafting of Basic Sloper Patterns 2.1 Basic Bodice Sloper: Front & Back. 2.2 Basic Sleeve Sloper: - Short - Elbow length 3/4th, Full 2.3 Basic Skirt Sloper: Front & Back. Trouser Sloper: Front & Back.	CO1, CO2

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
<i>TSO 2f.</i> Elucidate the points to be taken care of while drafting the given sloper pattern.		
<i>TSO 3a.</i> Enumerate the techniques of Flat Pattern Making. <i>TSO 3b.</i> Describe diagrammatically the techniques of dart manipulation. <i>TSO 3c.</i> Use techniques of dart manipulation and prepare pattern by changing the waist dart to the given location. <i>TSO 3d.</i> Write the step-by-step process of creating dart cluster at shoulder. <i>TSO 3e.</i> Write the step-by-step process of creating dart cluster at waist. <i>TSO 3f.</i> Describe the process of adding fullness to a pattern. <i>TSO 3g.</i> Write the step-by-step process of creating fullness at yoke. <i>TSO 3h.</i> Write the step-by-step process of creating fullness at dart legs. <i>TSO 3i.</i> Prepare Contour guide pattern <i>TSO 3j.</i> Develop designs for wrap, off shoulder and halter bodice using contour guide pattern.	Unit-3.0 Techniques of Flat Pattern Making 3.1 Dart Manipulation: - Charting Dart Locations - Techniques of dart manipulation: Slash & Spread technique, Pivotal technique - Single Dart Series - Two Dart Series - Dart Clusters: Shoulder & Waist cluster 3.2 Adding Fullness: - Types of adding fullness: Equal, One-sided and Unequal fullness - Fullness at yoke - Fullness at dart leg 3.3 Contouring - Preparing contour guide patterns - Using contour guide pattern for wrap, off shoulder and halters	CO2, CO3
<i>TSO 4a.</i> Explain the process of drafting a basic bodice pattern set for the given women's wear. <i>TSO 4b.</i> State the use of pattern making principles for drafting the given womenswear. <i>TSO 4c.</i> Elaborate the procedure for adaptation of the given styles of women garments. <i>TSO 4d.</i> Draft pattern for the given style of women garment <i>TSO 4e.</i> Explain the process of drafting a basic bodice pattern for kids wear. <i>TSO 4f.</i> Elaborate procedure for adaptation of the given styles of kids garment. <i>TSO 4g.</i> Draft pattern for the given style of kid garment. <i>TSO 4h.</i> Elaborate procedure for adaptation of the given styles of men's garment. <i>TSO 4i.</i> Draft pattern for the given style of men garment.	Unit 4.0 Drafting of Women's wear, Men's wear, Kids Wear 4.1 Basic set of patterns for Women: Bodice Front ,Bodice Back ,Sleeve ,Skirt Front ,Skirt Back 4.2 Drafting of Kameez, Salwar, Saree Blouse. (IKS) 4.3 Drafting of Gown, Palazzo, Drafting of basic bodice for kids 4.4 Drafting of kid's wear : A-line frock, Waist line frock, Romper, Boy's Shorts. 4.5 Basic set of patterns for men: Shirt Front, Shirt Back, sleeve, Trouser Front, Trouser Back. 4.6 Drafting of Men's wear : T-shirt, Nehru jacket (IKS).	CO2, CO3, CO4
<i>TSO 5a.</i> Use the basic bodice sloper and create pattern for the given neckline. <i>TSO 5b.</i> Use the basic bodice sloper and create pattern for the given collar. <i>TSO 5c.</i> Use the basic bodice sloper and create pattern for the front and back yoke. <i>TSO 5d.</i> Prepare pattern for yoke with inverted box pleat.	Unit-5.0 Necklines, Collars & Yokes, Sleeves 5.1 Necklines: - Round - Sweetheart - V- shape - Cowl, - Halter - Off-shoulder	CO2, CO3, CO4, CO5

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
<i>TSO 5e.</i> Prepare pattern for yoke with added fullness. <i>TSO 5f.</i> Prepare pattern for waist yoke of the given shape. <i>TSO 5g.</i> Explain diagrammatically the different types of cuff. <i>TSO 5h.</i> Prepare pattern for the given cuff. <i>TSO 5i.</i> Differentiate between set-in-sleeve, extended sleeve and raglan sleeve. <i>TSO 5j.</i> Write the drafting of the given sleeve. <i>TSO 5k.</i> Differentiate between kimono and dolmon sleeves. <i>TSO 5l.</i> Classify sleeve including their subtypes. <i>TSO 5m.</i> Describe diagrammatically the procedure of manipulation of basic sleeve sloper to prepare the given set in sleeves. <i>TSO 5n.</i> Differentiate between plain sleeve and sleeve with extended caps.	5.2 Collars : - Peterpan - Mandarin collar - Shirt Collar 5.3 Yokes: - Bodice Yoke: - Basic front & back yoke - Yoke with inverted box pleat - Yoke with Added Fullness 5.4 Waist Yoke: Yoke with different shapes. 5.5 Sleeve Cuffs: - Basic shirt cuff - French cuff - Contoured cuff - Roll up cuff 5.6 Set-in-Sleeves: - Cap sleeve - Circular hemline sleeves - Bell sleeve - Petal sleeve - Sleeves with extended caps - Cowl sleeve - Bishop sleeve 5.7 Extended Sleeves: - Kimono - Dolmon 5.8 Raglan Sleeve	

Note: One major TSO may require more than one Theory session/Period.

K) Suggested Laboratory (Practical) Session Outcomes (LSOs) and List of Practical: P2451201

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
<i>LSO 1.1.</i> Use the patternmaking symbols and abbreviations to record the given dress form/ body measurements. <i>LSO 1.2.</i> Use pattern making tools to take the measurements of body or dress form.	1.	Demonstrate the process of taking dress form/ body measurements: - Vertical - Horizontal - Girth	CO1
<i>LSO 2.1.</i> Use the standard measurements / body measurements to prepare pattern for the given sloper. <i>LSO 2.2.</i> Use the appropriate pattern making tools to prepare the pattern for the given sloper. <i>LSO 2.3.</i> Use appropriate symbols and abbreviation to mark the given pattern.	2.	Prepare the sloper patterns of the following using the given measurements: - Basic bodice - Basic sleeve - Basic skirt - Trouser Sloper	CO1, CO2
<i>LSO 3.1.</i> Develop different patterns of single dart series without changing the fit of the given pattern. <i>LSO 3.2.</i> Use precisely the techniques of dart manipulation.	3.	Prepare pattern of Single Dart Series by changing the waist dart to given location using the following techniques of dart manipulation: - Slash and Spread - Pivotal	CO2, CO3

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
<i>LSO 4.1.</i> Develop different patterns of double dart series without changing the fit of the given pattern. <i>LSO 4.2.</i> Use precisely the techniques of dart manipulation.	4.	Prepare pattern of following Double dart series by using slash and spread or pivotal technique of dart manipulation: • Waist dart and shoulder dart • Waist dart and French dart • Waist dart and armhole dart	CO2, CO3
<i>LSO5.1</i> Use dart manipulation techniques to create pattern for designs with dart cluster at the given location.	5.	Prepare pattern for dart cluster at following location: • Shoulder • Waist	CO2, CO3
<i>LSO 6.1</i> Choose appropriate techniques of adding fullness as per the given design.	6.	Create patterns of added fullness using appropriate techniques at following locations: • At yoke • At dart legs	CO3
<i>LSO7.1</i> Use contour guide pattern to create pattern for the given design.	7.	Create patterns for the following using contour guide: • Wrap dress • Off shoulder dress • Halter dress	CO3
<i>LSO8.1</i> Use basic bodice sloper to develop the pattern of given necklines. <i>LSO 8.2</i> Use slash and spread/ pivotal technique to develop pattern for the given cowl and halter neckline.	8.	Prepare pattern of following necklines: • Round • Sweetheart • V- shape • Cowl, • Halter • Off-shoulder	CO2, CO3, CO4
<i>LSO 9.1</i> Use basic bodice sloper to develop the pattern of the given collars.	9.	Prepare pattern of following collars: • Peterpan • Mandarin • Shirt	CO2, CO4
<i>LSO 10.1</i> Manipulate basic bodice sloper to create pattern of the given bodice yoke. <i>LSO 10.2</i> Manipulate basic skirt sloper to create pattern of the given bodice yoke.	10.	Prepare pattern of following yokes: • Basic front & back yoke • Yoke with inverted box pleat • Yoke with Added Fullness • Waist Yoke of given shape	CO2, CO4
<i>LSO 11.1</i> Use basic sleeve sloper to develop the pattern of the given cuff.	11.	Prepare pattern for following cuffs: • Basic shirt cuff • French cuff • Contoured cuff • Roll up cuff	CO2, CO5
<i>LSO 12.1</i> Manipulate basic sleeve sloper to create the pattern of the given set in sleeve.	12.	Prepare patterns for following Set-in-sleeves: • Cap sleeve • Circular hemline sleeves • Bell sleeve • Petal sleeve • Sleeves with extended caps • Cowl sleeve • Bishop sleeve	CO2, CO3, CO5
<i>LSO 13.1</i> Manipulate basic bodice and sleeve sloper to create pattern of the given extended sleeve.	13	Prepare patterns for Extended sleeves: • Kimono • Dolmon	CO2, CO5

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
LSO 14.1 Manipulate basic bodice and sleeve sloper to create pattern of the given raglan sleeve.	14	Prepare patterns for Raglan sleeve.	CO2, CO5

L) Suggested Term Work and Self Learning: S2451201

Some sample suggested assignments, micro project and other activities are mentioned here for reference.

a. **Assignments:** Prepare a portfolio file of patterns mentioned in Unit 2,3,4,5.

b. **Micro Projects:**

1. Develop 2 novel patterns using Contour guide pattern.
2. Search 3 designs based on origami pattern, observe them and create patterns using your own body measurements.
3. Create a novel sleeve pattern (other than those mentioned in unit 5) using basic sleeve sloper.

c. **Other Activities:**

1. Seminar Topics:
 - Digital Pattern Making.
 - Twisted Pattern of Garments.
2. Visits: Visit a nearby apparel manufacturing unit to explore the industrial methods of pattern making and prepare the report.
3. Self-Learning Topics:
 - Explore new designs and develop its pattern.

M) **Suggested Course Evaluation Matrix:** The course teacher has to decide and use appropriate assessment strategy and its weightage in theory, laboratory and Term Work for ensuring CO attainment. The response/performance of each student in each of these designed activities is to be used to calculate CO attainment.

COs	Course Evaluation Matrix						
	Theory Assessment (TA)**		Term Work Assessment (TWA)			Lab Assessment (LA)#	
	Progressive Theory Assessment (PTA) Class/Mid Sem Test	End Theory Assessment (ETA)	Term Work& Self Learning Assessment			Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)
			Assignments	Micro Projects	Other Activities*		
CO-1	5%	10%	5%	-	-	10%	20%
CO-2	20%	15%	20%	-	-	15%	20%
CO-3	15%	15%	15%	33%	33%	10%	20%
CO-4	35%	35%	35%	33%	33%	35%	20%
CO-5	25%	25%	25%	34%	34%	30%	20%
Total Marks	30	70	20	20	10	20	30
			50				

Legend:

- *: Other Activities include self- learning, seminar, visits, surveys, product development, software development etc.
 **: Mentioned under point- (N)
 #: Mentioned under point-(O)

Note:

- The percentages given are approximate.
- In case of Micro Projects and End Laboratory Assessment (ELA), the achieved marks will be equally divided in all those COs mapped with total experiments.
- For CO attainment calculation indirect assessment tools like course exit survey need to be used which comprises of questions related to achievement of each COs?

N) Suggested Specification Table for End Semester Theory Assessment: Specification table represents the reflection of sample representation of assessment of cognitive domain of full course.

Unit Title and Number	Total Classroom Instruction (CI) Hours	Relevant COs Number(s)	Total Marks	ETA (Marks)		
				Remember (R)	Understanding (U)	Application & above (A)
Unit-1.0 Introduction to Pattern Making	4	CO1	6	2	3	1
Unit-2.0 Drafting of Basic Sloper Patterns	10	CO1, CO2	12	4	3	5
Unit-3.0 Techniques of Flat Pattern Making	8	CO2, CO3	10	3	3	4
Unit-4.0 Drafting of Women's wear, Men's wear, Kids Wear	14	CO2, CO3, CO4	22	6	6	10
Unit-5.0 Necklines, Collars & Yokes, Sleeves	12	CO2, CO5	20	5	6	9
Total	48	-	70	20	21	29

Note: Similar table can also be used to design class/mid-term/ internal question paper for progressive assessment.

O) Suggested Assessment Table for Laboratory (Practical):

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
1.	Demonstrate the process of taking dress form/ body measurements: • Vertical • Horizontal • Girth	CO1	30	60	10
2.	Prepare the sloper patterns of the following using the given measurements: • Basic bodice • Basic sleeve • Basic skirt • Trouser Sloper	CO1, CO2	40	50	10
3.	Prepare pattern of Single Dart Series by changing the waist dart to given location using the following techniques of dart manipulation: • Slash and Spread • Pivotal	CO2, CO3	50	40	10
4.	Prepare pattern of following Double dart series by using slash and spread or pivotal technique of dart manipulation: • Waist dart and shoulder dart • Waist dart and French dart • Waist dart and armhole dart	CO2, CO3	50	40	10

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
5.	Prepare pattern for dart cluster at following location: - Shoulder - Waist	CO2, CO3	50	40	10
6.	Create patterns of added fullness using appropriate techniques at following locations: - At yoke - At dart legs	CO3	40	50	10
7.	Create patterns for the following using contour guide: - Wrap dress - Off shoulder dress - Halter dress	CO3	50	40	10
8.	Prepare pattern of following necklines: - Round - Sweetheart - V- shape - Cowl, - Halter - Off-shoulder	CO2, CO3, CO4	50	40	10
9.	Prepare pattern of following collars: - Peterpan - Mandarin - Shirt	CO2, CO4	40	50	10
10.	Prepare pattern of following yokes: - Basic front & back yoke - Yoke with inverted box pleat - Yoke with Added Fullness - Waist Yoke of given shape	CO2, CO4	40	50	10
11.	Prepare pattern for following cuffs: - Basic shirt cuff - French cuff - Contoured cuff - Roll up cuff	CO2, CO5	40	50	10
12.	Prepare patterns for following Set-in-sleeves: - Cap sleeve - Circular hemline sleeves - Bell sleeve - Petal sleeve - Sleeves with extended caps - Cowl sleeve - Bishop sleeve	CO2, CO3, CO5	50	40	10
13.	Prepare patterns for Extended sleeves: - Kimono - Dolmon	CO2, CO5	40	50	10
14.	Prepare patterns for Raglan sleeve	CO2, CO5	40	50	10

Legend:

PRA*: Process Assessment

PDA**: Product Assessment

Note: This table can be used for both end semester as well as progressive assessment of practical. Rubrics need to be prepared by the course teacher for each experiment/practical to assess the student performance.

P) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately selected, as per the requirement of the content/outcome. Some of them are Improved Lecture, Tutorial, Case Method, Group Discussion, Industrial visits, Industrial Training, Field Trips, Portfolio Based, Learning, Role Play, Live Demonstrations in Classrooms, Lab, Field Information and Communications Technology (ICT)Based Teaching Learning, Blended or flipped mode, Brainstorming, Expert Session, Video Clippings, Use of Open Educational Resources (OER), MOOCs etc.

Q) List of Major Laboratory Equipment, Tools and Software:

S. No.	Name of Equipment & Tools	Broad Specifications	Relevant Experiment/Practical Number
1.	Pattern cutting table	Height- 3 feet, Size- 2400X1200X900MM	All
2.	Pattern Maker Fashion Designing Ruler and Multi-Purpose Marking Curve	43X19cm, Thickness- 3mm	All
3.	French Curve with cm markings	--	All
4.	Hip Curve Ruler	Dimensions- 600 x 40 x 5 mm Graduation Range 0-24 Inches	All
5.	Leg Curve Ruler	Dimensions - 750 x 40 x 5 mm, Graduation Range 0-30 Inches	All
6.	L Scale	14X24 inches	All
7.	Tailor's Scissors	11" anti rust stainless steel scissors with alloy steel blade material	All
8.	Measuring Tape	60 inches long	All
9.	Pattern Paper/ Brown Paper	-	All

R) Suggested Learning Resources:

(a) Books:

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Pattern Making For Fashion Design	Helen Joseph Armstrong	Pearson, 2014, Fifth edition ISBN: 978-93-325-1811-7
2.	Basic Pattern Making In Fashion	Lucia Mors	Taschen, 2009 ISBN: 3836517213, 978-3836517218
3.	Principles of Flat Pattern Design	Nora M. Mac Donald	Fairchild Publications, 4 th Edition, 2019 ISBN: 9781501353529
4.	Patternmaking: A Comprehensive Reference for Fashion Design	Sylvia Rosen	Pearson, 2004 ISBN: 978-0130262431
5.	Pattern Making by the Flat Pattern Method	Norma. R. Hollen, Carolyn. J. Kundel	Pearson, 8 th edition, 1998 ISBN: 978-0139380938

(b) Online Educational Resources:

1. <https://www.youtube.com/watch?v=0WVOhnq1cro>
2. <https://www.youtube.com/watch?v=bbhlvYjDMg8>
3. <https://www.youtube.com/watch?v=5M7HyHjjZY>
4. <https://www.youtube.com/watch?v=leSGoOVbY5A>
5. https://www.youtube.com/watch?v=V_gA4RIKGLI
6. https://www.youtube.com/watch?v=HohIMuBY_eM
7. <https://www.youtube.com/watch?v=P1bvkscWnw>
8. <https://www.youtube.com/watch?v=biraYMOKck8>

Note: Teachers are requested to check the creative commons license status/ financial implications of the suggested, online educational resources before use by the students.

- A) **Course Code** : 2450102 (T2450102/P2450102/S2450102)
- B) **Course Title** : Figure & Garment Sketching
- C) **Pre-requisite Course(s)** :
- D) **Rationale** :

Figure Sketching is a specialized art of drawing human form that involves proportion guidelines to create stylized fashion figures (croquis). It involves sketching of female, male and child fashion figure. On the other hand, Garment sketching helps to visualize the designs and silhouette of an outfit on a figure, communicate the texture, print, embellishment and details like neckline, sleeves, pockets etc. of a garment. Figure and Garment sketching is an indispensable skill for a budding designer as it helps him/her to showcase his/ her collection, create visual merchandising display and convey design ideas to the client or manufacturer.

- E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following course outcomes by the learners. For this, the learners are expected to perform various activities related to three learning domains (Cognitive, Psychomotor and Affective) in classroom/laboratory/workshop/field/ industry.

After completion of the course, the students will be able to-

Draw female fashion figure of different head dimensions, poses, views, and body, hand and leg postures.

Draw male and child fashion figure of different head dimensions, poses and views.

Design outfits using combination of various design details.

Sketch the designs of garments by implementing surface embellishment and fullness techniques.

Design garments by combining appropriate design details, fullness techniques, surface embellishment and fabric textures.

Draw the figure, outfits and accessories by referring photographs.

- F) **Suggested Course Articulation Matrix (CAM):**

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
CO-1	3	1	2	-	-	1	1		
CO-2	3	1	2	-	-	1	1		
CO-3	3	-	3	-	1	1	1		
CO-4	3	1	2	-	1	1	1		
CO-5	3	-	3	-	1	1	1		
CO-6	3	2	2	-	-	1	1		

Legend: High (3), Medium (2), Low (1) and No mapping (-)

* PSOs will be developed by respective programme coordinator at institute level. As per latest NBA guidelines, formulating PSOs is optional.

G) Teaching & Learning Scheme:

Course Code	Course Title	Scheme of Study (Hours/Week)					
		Classroom Instruction (CI)		Lab Instruction (LI)	Notional Hours (TW+ SL)	Total Hours (CI+LI+TW+SL)	Total Credits (C)
		L	T				
2450102	Figure & Garment Sketching	03	-	04	02	09	06

Legend:

CI: Classroom Instruction (Includes different instructional/implementation strategies i.e. .Lecture (L), Tutorial (T), Case method, Demonstrations, Video demonstration, Problem based learning etc. to deliver theoretical concepts)

LI: Laboratory Instruction (Includes experiments/practical performances /problem-based experiences in laboratory, workshop, field or other locations using different instructional/Implementation strategies)

Notional Hours: Hours of engagement by learners, other than the contact hours for ensuring learning.

TW: Term Work (includes assignments, seminars, micro projects, industrial visits, any other student activities etc.)

SL: Self Learning, MOOCs, spoken tutorials, online educational resources etc.

C: Credits= (1xCIhours) + (0.5xLIhours) + (0.5xNotionalhours)

Note: TW and SL have to be planned by the teacher and performed by the learner under the continuous guidance and feedback of teacher to ensure outcome of learning.

H) Assessment Scheme:

Course Code	Course Title	Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
		Theory Assessment (TA)		Term Work& Self-Learning Assessment (TWA)		Lab Assessment (LA)		
		Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Internal	External	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
2450102	Figure & Garment Sketching	30	70	20	30	20	30	200

Legend:

PTA: Progressive Theory Assessment in class room (includes class test, mid-term test and quiz using online/offline modes)

PLA: Progressive Laboratory Assessment (includes process and product assessments integrating Scales and rubrics)

TWA: Term work & Self Learning Assessment (Includes assessment related to student performance in assignments, seminars, micro projects, industrial visits, self-learning, any other student activities etc.)

Note:

ETA & ELA are to be carried out at the end of the term/ semester.

Term Work is to be done by the students under the guidance of internal faculty but its assessment will be done **internally (40%)** as well as **externally (60%)**. Assessment related to planning and execution of Term Work activities like assignment, micro project, and seminar and self-learning is to be done by internal faculty (Internal Assessment) whereas assessment of output/product/ presentation related to these activities will be carried out by external faculty/expert (External Assessment). However, criteria of internal as well as external assessment may vary as per the requirement of respective course. For valid and reliable assessment, the internal faculty should prepare checklist & rubrics for these activities.

Course Curriculum Detailing: This course curriculum detailing depicts learning outcomes at course level and session level and their attainment by the students through Classroom Instruction (CI), Laboratory Instruction (LI), Term Work (TW) and Self Learning (SL). Students are expected to demonstrate the attainment of Theory Session Outcomes (TSOs) and Lab Session Outcomes (LSOs) leading to attainment of Course Outcomes (COs) upon the completion of the course. While curriculum detailing, NEP 2020 related reforms like Green skills, Sustainability, Multidisciplinary aspects, Society connect, Indian Knowledge System (IKS) and others must be integrated appropriately.

J) Theory Session Outcomes (TSOs) and Units: T2450102

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
<i>TSO 1a.</i> Differentiate between proportion of average female figure and fashion figure. <i>TSO 1b.</i> List the measurements of vertical and horizontal division of average female figure. <i>TSO 1c.</i> Write the measurements of vertical and horizontal division of female fashion figure of the given head dimensions. <i>TSO 1d.</i> Convert Stick figure to Block figure of the given head dimension. <i>TSO 1e.</i> Draw stick figure for the given pose and head dimensions and convert it into flesh figure. <i>TSO 1f.</i> List the measurements of vertical and horizontal division of female fashion figure for the given view and given head dimensions. <i>TSO 1g.</i> Draw different positions of body, hand & leg for the given head dimensions.	Unit-1.0 Female Fashion Figure (Croqui) 1.1 7½ head average female figure (Stick, Block & Flesh figure) 1.2 9 head female fashion figure (Stick, Block & Flesh figure) 1.3 12 head female fashion figure (Stick, Block & Flesh figure) 1.4 Different Poses: 1.4a Standing Pose 1.4b Sitting Pose 1.4c Walking Pose 1.5 Different Views: 1.5a Front view 1.5b Back view 1.5c ¾ view 1.5d Profile (Side view) 1.6 Body, hand and leg posture	CO1
<i>TSO 2a.</i> Differentiate between average male and female figure. <i>TSO 2b.</i> Compare the proportion of male and female fashion figure. <i>TSO 2c.</i> List the measurements of vertical and horizontal division of average male figure. <i>TSO 2d.</i> Write the measurements of vertical and horizontal division of male fashion figure of the given head dimensions. <i>TSO 2e.</i> Convert Stick figure to Block figure of given head dimensions. <i>TSO 2f.</i> Sketch the given pose and view of male fashion figure. <i>TSO 2g.</i> Write the measurements of vertical and horizontal division of child figure of given head dimensions. <i>TSO 2h.</i> Compare the vertical division of five and six head child figures.	Unit-2.0 Male & Child Fashion Figure (Croqui) 2.1 Male Fashion Figure 2.1a 7½ head average male figure (Stick, Block & Flesh figure) 2.1b 10 head male fashion figure (Stick, Block & Flesh figure) 2.1c 12 head male fashion figure (Stick, Block & Flesh figure) 2.1d Different Poses & Views 2.2 Child Figure 2.2a Four head figure for infant 2.2b Five head figure for child 2.2c Six head figure for child	CO1, CO2

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
<i>TSO 3a.</i> Enumerate the names of basic and stylized necklines/ collars/ sleeves/ pockets. <i>TSO 3b.</i> Explain with diagram the given necklines/collars/ sleeves/ pockets/ jabots/ yokes / drapes. <i>TSO 3c.</i> Outline the difference between given design details with diagram. <i>TSO 3d.</i> Design the drape effect of Western, Indian and indo-western garments on fashion figure of given head dimensions with sketches. <i>TSO 3e.</i> Illustrate the given garment on fashion figure of the given head dimensions using combination of various design details.	Unit-3.0 Design Details in Garment 3.1 Necklines : 3.1a Basic Neckline: Round, Square, V & U necklines 3.1b Stylized Necklines: Boat, Illusion, Cowl, Halter, Plunge, Drawstring, Asymmetric, Off Shoulder. 3.2 Collars: Mandarin, Notched, Peterpan, Shirt, Turtle, Shawl, Ruffle 3.3 Sleeves: Puff, Raglan, Kimono, Bishop, Cap, Petal, Bell, Leg-o-mutton 3.4 Pockets: Patch, Pouch, Slash, Ticket, Welt 3.5 Jabot 3.6 Yokes 3.7 Drapes	CO1, CO3
<i>TSO 4a.</i> Explain the given fullness techniques with diagram. <i>TSO 4b.</i> Choose appropriate fullness techniques as per the requirement of end use of garment with justification. <i>TSO 4c.</i> Classify the techniques of surface embellishment. <i>TSO 4d.</i> Illustrate the given surface embellishment using appropriate color medium. <i>TSO 4e.</i> Distinguish between appliqué and patch work. <i>TSO 4f.</i> Explain the given type of embroidery with sketches.	Unit-4.0 Fullness Techniques and Surface Embellishment 4.1 Fullness techniques: 4.1a Pleats 4.1b Tucks 4.1c Shirring 4.1d Gathers 4.1e Frills 4.1f Flounces 4.1g Dart 4.1h Gores 4.1i Godet 4.2 Rendering Surface Embellishment with different color medium: 4.2a Embroidery 4.2b Applique 4.2c Smocking 4.2d Bead work 4.2e Patch work	CO1, CO4
<i>TSO 5a.</i> Select suitable color medium for rendering the given fabric with justification. <i>TSO 5b.</i> Draw the stick & flesh figure for the pose by analyzing the given photograph. <i>TSO 5c.</i> Render the outfit (using figure drawn above) creating the fabric folds & textures using appropriate color media per the given photograph. <i>TSO 5d.</i> Design outfits on fashion figure combining varied design details, fabric textures and surface embellishments.	Unit-5.0 Fabric Rendering, Photo Illustration 5.1 Fabric Rendering: 5.1a Denim 5.1b Leather 5.1c Checks & Prints 5.1d Brocade 5.1e Silk 5.1f Cotton 5.1g Lace 5.1h Sheer Fabric 5.1i Knits 5.1j Fur 5.2 Photo Illustration: Design Drawing from Photograph 5.2a Rendering Saree 5.2b Rendering Casual outfit (for male, female and child) 5.2c Rendering Office Wear (for male, female) 5.2d Rendering Bridal Wear (for male & female)	CO5, CO6

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)

Note: One major TSO may require more than one Theory session/Period.

K) Suggested Laboratory (Practical) Session Outcomes (LSOs) and List of Practical: P2450102

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
<i>LSO1.1</i> Use the measurements of vertical and horizontal divisions to draw the female fashion figure of the given head dimensions. <i>LSO1.2</i> Convert stick to flesh figure.	1.	Sketch the stick figure and convert it into flesh figure of the following head dimensions: 7½ head average female figure 9 head female fashion figure 12 head female fashion figure	CO1
<i>LSO2.1</i> Sketch varied poses, views, and hand and leg positions of female fashion figure by changing the balance line of the body.	2.	Draw the female fashion figure combining the given pose, view, and hand and leg positions.	CO1
<i>LSO3.1</i> Use the measurements of vertical and horizontal divisions to draw male fashion figure of the given head dimensions. <i>LSO3.2</i> Convert stick to flesh figure of the given head dimensions.	3.	Sketch the stick figure and convert it into flesh figure of the following head dimensions: 7½ head average male figure 9 head male fashion figure 12 head male fashion figure	CO2
<i>LSO4.1</i> Sketch varied poses and views of male fashion figure by changing the balance line of the body.	4.	Draw the male fashion figure combining the given pose and view.	CO2
<i>LSO5.1</i> Use the measurements of vertical and horizontal divisions to draw child fashion figure of the given head dimensions. <i>LSO5.2</i> Convert stick to flesh figure of the given head dimensions.	5.	Sketch the stick figure and convert it into flesh figure of the following head dimensions: Four head figure for infant Five head figure for child Six head figure for child	CO2
<i>LSO6.1</i> Sketch the design details precisely showcasing fabric folds and stitches. <i>LSO6.2</i> Design garments using combination of varied design details as per the prevailing trends.	6.	Sketch the given design details using 9 head female fashion figure: Basic and stylized necklines Collars Sleeves Pockets Jabots Yokes Drapes	CO1, CO3
<i>LSO7.1</i> Render the fullness techniques creating appropriate folds, depth and shades of the fabric. <i>LSO7.2</i> Design outfits combining the appropriate fullness techniques and design details as per the requirement and prevailing trends.	7.	Sketch the given fullness techniques on garments using 9 head fashion figure (male/female) or six head child figure: Pleats Tucks Shirring Gathers Frills Flounces	CO1, CO2, CO3, CO4

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
		Dart Gores Godet	
<i>LSO8.1</i> Design varied articles such as table runner, curtains, apparel etc. by combining 2 or more surface embellishment techniques.	8.	Sketch the effect of following surface embellishments on the given article: Embroidery Applique Smocking Bead work Patch work	CO4
<i>LSO9.1</i> Design outfits such as casual wear, ethnic wear, formal wear etc. by combining the appropriate design details, surface embellishments and textures of fabric.	9.	Sketch the following textures of fabric on the given garment: Denim Leather Checks & Prints Brocade Silk Cotton Lace Sheer Fabric Knits Fur	CO3, CO4, CO5
<i>LSO10.1</i> Render the outfit as per the given photograph.	10.	Draw the figure, garment, fabric texture, design details, embellishment, and accessories as per the given photograph.	CO1, CO2, CO3, CO4, CO5, CO6

L) Suggested Term Work and Self Learning: S2450102 Some sample suggested assignments, micro project and other activities are mentioned here for reference.

a. Assignments: Prepare sheets illustrating the fashion figures, design details, surface embellishments, fullness techniques and photo illustration mentioned in Unit 1.0, 2.0, 3.0, 4.0 and 5.0

b. Micro Projects:

- Select a garment that has sleeves and collar and create a series of sleeve and collar variation that would complement the garment's overall design. Try out different sleeve length, shapes, details and finishes. Use fashion figure (female/male/child) of desired head dimensions to present your designs.
- Choose a theme or inspiration and create a collection of fashion sketches that include appropriate clothing with respect to design details, fabric textures, surface embellishment and fullness techniques.

c. Other Activities:

1. Workshop Topics:

- Basic sketching techniques.
- Proportion and anatomy of human figure.
- Creating ombre, sequin, fringe, brocade fabric effects using varied color media.
- Creating a collection based on theme.

Visits: Visit nearby art exhibitions, handloom exhibitions, and garment shops, fashion shows to explore the prevailing trends and ideate new designs.

2. Self-Learning Topics:

Varied pencil strokes needed for free hand illustrations.

Trend forecasting: Upgrade with latest fashion trends and incorporate it in garment illustration.

- M) Suggested Course Evaluation Matrix:** The course teacher has to decide and use appropriate assessment strategy and its weightage in theory, laboratory and Term Work for ensuring CO attainment. The response/performance of each student in each of these designed activities is to be used to calculate CO attainment.

COs	Course Evaluation Matrix						
	Theory Assessment (TA)**		Term Work Assessment (TWA)			Lab Assessment (LA)#	
	Progressive Theory Assessment (PTA) Class/Mid Sem Test	End Theory Assessment (ETA)	Term Work& Self Learning Assessment			Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)
			Assignments	Micro Projects	Other Activities*		
CO-1	15%	15%	15%	-	-	10%	15%
CO-2	15%	15%	15%	-	-	10%	15%
CO-3	20%	20%	20%	20%	30	20%	20%
CO-4	20%	20%	20%	30%	30	20%	20%
CO-5	15%	15%	15%	25%	20	20%	15%
CO-6	15%	15%	15%	25%	20	20%	15%
Total Marks	30	70	20	20	10	20	30
			50				

Legend:

*: Other Activities include self- learning, seminar, visits, surveys, product development, software development etc.

** : Mentioned under point- (N)

: Mentioned under point-(O)

Note:

- The percentages given are approximate.
- In case of Micro Projects and End Laboratory Assessment (ELA), the achieved marks will be equally divided in all those COs mapped with total experiments.
- For CO attainment calculation indirect assessment tools like course exit survey need to be used which comprises of questions related to achievement of each COs?

- N) Suggested Specification Table for End Semester Theory Assessment:** Specification table represents the reflection of sample representation of assessment of cognitive domain of full course.

Unit Title and Number	Total Classroom Instruction (CI) Hours	Relevant COs Number(s)	Total Marks	ETA (Marks)		
				Remember (R)	Understanding (U)	Application & above (A)
Unit-1.0 Female Fashion Figure (Croqui)	8	CO1	10	3	3	4
Unit-2.0 Male & Child Fashion Figure (Croqui)	8	CO1, CO2	10	3	3	4
Unit-3.0 Design Details in Garment	10	CO1, CO3	14	4	4	6
Unit-4.0 Fullness Techniques and Surface Embellishment	10	CO1, CO4	14	4	4	6
Unit-5.0 Fabric Rendering, Photo Illustration	12	CO5, CO6	22	6	6	10
Total	48	-	70	20	20	30

Note: Similar table can also be used to design class/mid-term/ internal question paper for progressive assessment.

O) Suggested Assessment Table for Laboratory (Practical):

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
1.	Sketch the stick figure and convert it into flesh figure of the following head dimensions: 7½ head average female figure 9 head female fashion figure 12 head female fashion figure	CO1	30	60	10
2.	Draw the female fashion figure combining the given pose, view, and hand and leg positions.	CO1	40	50	10
3.	Sketch the stick figure and convert it into flesh figure of the following head dimensions: 7½ head average male figure 9 head male fashion figure 12 head male fashion figure	CO2	30	60	10
4.	Draw the male fashion figure combining the given pose and view.	CO2	40	50	10
5.	Sketch the stick figure and convert it into flesh figure of the following head dimensions: Four head figure for infant Five head figure for child Six head figure for child	CO2	30	60	10
6.	Sketch the given design details using 9 head female fashion figure: Basic and stylized necklines Collars Sleeves Pockets Jabots Yokes Drapes	CO1, CO3	30	60	10
7.	Sketch the given fullness techniques on garments using 9 head fashion figure (male/ female) or six head child figure: Pleats Tucks Shirring Gathers Frills Flounces Dart Gores Godet	CO1, CO2, CO3, CO4	30	60	10
8.	Sketch the effect of following surface embellishments on the given article: Embroidery Applique Smocking Bead work Patch work	CO4	30	60	10
9.	Sketch the following textures of fabric on the given garment: Denim Leather Checks & Prints Brocade Silk	CO3, CO4, CO5	40	50	10

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
	Cotton Lace Sheer Fabric Knits Fur				
10.	Draw the figure, garment, fabric texture, design details, embellishment, and accessories as per the given photograph.	CO1, CO2, CO3, CO4, CO5, CO6	40	50	10

Legend:

PRA*: Process Assessment

PDA**: Product Assessment

Note: This table can be used for both end semester as well as progressive assessment of practical. Rubrics need to be prepared by the course teacher for each experiment/practical to assess the student performance.

P) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately selected, as per the requirement of the content/outcome. Some of them are Improved Lecture, Tutorial, Case Method, Group Discussion, Industrial visits, Industrial Training, Field Trips, Portfolio Based, Learning, Role Play, Live Demonstrations in Classrooms, Lab, Field Information and Communications Technology (ICT)Based Teaching Learning, Blended or flipped mode, Brainstorming, Expert Session, Video Clippings, Use of Open Educational Resources (OER), MOOCs etc.

Q) List of Major Laboratory Equipment, Tools and Software:

S. No.	Materials Required	Broad Specifications	Relevant Experiment/Practical Number
1.	Cartridge Sheets and Ivory Sheets	¼ Sheet	All experiments
2.	Color Pencils	Staedlers 137 C Luna Water based colours (pack of 48 colours), Faber Castell Polychromous colour pencil set (pack of 36 colours)	All experiments
3.	Other Colour Medium	Water colour, waterproof ink, acrylic colours.	6,7,8,9,10
4.	Sketch Pens and Brush Pens	Camlin Brush Pens (pack of 24 colours) Faber Castell connector sketch pens (pack of 50)	6,7,8,9,10
5.	Painting Brushes	1.Round water colour brushes (Camlin or Fine Art) Size nos.0, 2, 4,5,8,10,12 2. Flat water colour brushes (Camlin or Fine Art) Size nos.3, 5,8,12	6,7,8,9,10
6.	Colour Palette		As per requirement.

R) Suggested Learning Resources:

Books:

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	New Encyclopedia of Fashion Details	Patrick Jhon Ireland	Batsford Ltd, 2008 ISBN-13: 978-1906388065
2.	Fashion Drawing- The Basic Principles	Anne Allen and Julian Seaman	Batsford Ltd, 2003 ISBN-13: 978-0713470963

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
3.	Fashion Illustration Techniques: A Super Reference Book for Beginners	Zeshu Takamura	Rockport Publishers, Reprint edition (1 April 2012) ISBN-13 : 978-1592537952
4.	Fashion Illustration Techniques	Maite Lafuente	Taschen America ; Multilingual edition (1 August 2008) ISBN-13 : 978-3836504072
5	Fashion illustration for Designers	Kathryn Hagen	Pearson Education, New Jersey. 2005 ISBN-13 : 978-0135015575

(b) Online Educational Resources:

https://www.youtube.com/watch?v=mEJU_uOM2ps

<https://www.youtube.com/watch?v=b9qrj0MXFSg>

https://www.youtube.com/watch?v=gZZ_y3DsWBs

<https://www.youtube.com/watch?v=vpblitbpCeU>

<https://www.youtube.com/watch?v=K3p1xXVqlus>

https://www.youtube.com/watch?v=f_PXydshfJw&t=33s

<https://www.youtube.com/watch?v=BVIFo02kSKo>

Note: Teachers are requested to check the creative commons license status/ financial implications of the suggested, online educational resources before use by the students.

- A) **Course Code** : 2400104 (T2400104/P2400104/S2400104)
- B) **Course Title** : Communication Skills (English) (Common for all Programmes)
- C) **Pre-requisite Course(s)** :
- D) **Rationale**

Communication forms a crucial element in the success of any organization or industry in the globalized economy. The global village gives due weightage to the English language and it enjoys a privileged status. Engineering students with English as a communicative language are open to many opportunities across the globe. This course will develop Listening, Speaking, Reading, and Writing Skills (LSRW) in the students for effective dissemination of their ideas, projects, patents, and research in the form of presentations, reports, research papers, memos, circulars, etc. Additionally, it will help students of diploma in engineering to present concepts and designs effectively along with writing CVs, Group Discussions, and Mock Interview sessions in placements and job recruitments. Though communication skills in SBTE, Bihar largely emphasizes to communicate effectively in English communication in Hindi is also focused to some extent at the diploma level. **Effective Communication can be easily learned through Indian mythological scriptures like Bhagwat Geeta, Ramayana, Mahabharata, and others. (IKS)**

- E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of the following course outcomes by the learners. For this, the learners are expected to perform various activities related to three learning domains (Cognitive, Psychomotor, and Affective) in classroom/ laboratory/ workshop/ field/ industry.

After completion of the course, the students will be able to-

- CO-1** Communicate contextually in different situations.
- CO-2** Use Verbal Communication Effectively
- CO-3** Deploy Non-Verbal Communication Contextually.
- CO-4** Write various texts using vocabulary and correct grammar.
- CO-5** Draft effective business correspondence with brevity and clarity.

- F) **Suggested Course Articulation Matrix (CAM):**

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
CO-1	3	-	-	-	-	3	3		
CO-2	-	-	-	-	-	3	3		
CO-3	-	-	-	-	-	3	3		
CO-4	-	-	-	-	3	3	3		
CO-5	3	-	-	-	-	3	3		

Legend: High (3), Medium (2), Low (1) and No mapping (-)

* PSOs will be developed by respective programme coordinator at institute level. As per latest NBA guidelines, formulating PSOs is optional.

G) Teaching & Learning Scheme:

Course Code	Course Title	Scheme of Study (Hours/Week)					
		Classroom Instruction (CI)		Lab Instruction (LI)	Notional Hours (TW+ SL)	Total Hours (CI+LI+TW+SL)	Total Credits (C)
		L	T				
2400104	Communication Skills (English)	03	-	04	02	09	06

Legend:

CI: Classroom Instruction (Includes different instructional/implementation strategies i.e. Lecture (L), Tutorial (T), Case method, Demonstrations, Video demonstration, Problem-based learning, etc. to deliver theoretical concepts)

LI: Laboratory Instruction (Includes experiments/practical performances /problem-based experiences in laboratory, workshop, field, or other locations using different instructional/Implementation strategies)

Notional Hours: Hours of engagement by learners, other than the contact hours for ensuring learning.

TW: Term Work (includes assignments, seminars, micro-projects, industrial visits, any other student activities, etc.)

SL: Self Learning, MOOCs, spoken tutorials, online educational resources, etc.

C: Credits = (1 x CI hours) + (0.5 x LI hours) + (0.5 x Notional hours)

Note: TW and SL have to be planned by the teacher and performed by the learner under the continuous guidance and feedback of the teacher to ensure the outcome of learning.

H) Assessment Scheme:

Course Code	Course Title	Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
		Theory Assessment (TA)		Term Work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
		Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Internal	External	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
2400104	Communication Skills (English)	30	70	20	30	20	30	200

Legend:

PTA: Progressive Theory Assessment in classroom (includes class test, mid-term test and quiz using online/offline modes)

PLA: Progressive Laboratory Assessment (includes process and product assessment using rating Scales and rubrics)

TWA: Term work & Self Learning Assessment (Includes assessment related to student performance in assignments, seminars, micro projects, industrial visits, self-learning, any other student activities etc.)

Note:

- ETA & ELA are to be carried out at the end of the term/ semester.
- Term Work is to be done by the students under the guidance of internal faculty but its assessment will be done **internally (40%)** as well as **externally (60%)**. Assessment related to planning and execution of Term Work activities like assignment, micro project, seminar and self-learning is to be done by internal faculty (Internal Assessment) whereas assessment of output/product/ presentation related to these activities will be carried out by external faculty/expert (External Assessment). However, criteria of internal as well as external assessment may vary as per the requirement of respective course. For valid and reliable assessment, the internal faculty should prepare checklist & rubrics for these activities.

I) **Course Curriculum Detailing:** This course curriculum detailing depicts learning outcomes at course level and session level and their attainment by the students through Classroom Instruction (CI), Laboratory Instruction (LI), Term Work (TW), and Self Learning (SL). Students are expected to demonstrate the attainment of Theory Session Outcomes (TSOs) and Lab Session Outcomes (LSOs) leading to the attainment of Course Outcomes (COs) upon the completion of the course. While curriculum detailing, NEP 2020-related reforms like Green skills, Sustainability, Multidisciplinary aspects, Society connect, Indian Knowledge System (IKS), and others must be integrated appropriately.

J) **Theory Session Outcomes (TSOs) and Units: T2400104**

The details of TSOs and units for communication in English is mentioned in Part – A while communication in Hindi is mentioned in Part – B in the following table.

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
Part -A (English) TSO1.a Define communication and its different forms. TSO1.b Explain the elements of communication with Case Studies from Bhagwat Geeta's conversation between Krishna and Arjun before the war. (IKS) TSO1.c Explain the linkages between different stages of communication with the help of a diagram. TSO1.d Apply the principles of effective communication and state two examples of communication from Ramayana (IKS) TSO1.e State eight for explaining different types of barriers to communication Case Studies from Mahabharata - the conversation between Kauravas and Pandavas in the war field (IKS) TSO1.f Identify the barriers to communication. TSO1.g Suggest the ways to overcome/minimize communication barriers.	Unit-1.0 Communication 1.1 Communication: Role, Relevance, Elements (Context-Sender-Message-Channel-Receiver-Feedback) 1.2 Process / Stages: Ideation- Encoding, Selecting Proper Channel, Transmission, Receiving, Decoding, Giving Feedback 1.3 7 Cs / Principles of Effective Communication: Considerate, Correct, Concrete, Concise, Clear, Complete. Courteous 1.4 Barriers to Communication: Physiological, Physical, Psychological, Mechanical, Semantic/Language, Cultural. Overcome/ minimize Barriers. 1.5 Case Studies from: • Bhagwat Geeta's conversation between Krishna and Arjun before the war (IKS) • Mahabharata the conversation between Kauravas and Pandavas in the war field (IKS)	CO1 CO2
TSO 2a. Distinguish between formal and informal communication Case Studies from Bhagwat Geeta and the different conversations of Krishna and Arjun during the war (IKS). TSO 2b. Illustrate the types of Formal Communication with examples. TSO 2c. Define verbal & non-verbal communication. TSO 2d. TSO 2d. Explain the advantages of oral and written Communication. TSO 2e. Interpret non-verbal codes from Mahabharata (IKS) TSO 2f. Explain the role of tables, charts & graphs in communication.	Unit- 2.0 Types of Communication 2.1 Based on organizational structure: Formal (Vertical, Horizontal, Diagonal), Informal (Grapevine) 2.2 Based on the method of expression: Verbal-Oral & Written communication. Non-verbal communication and its Codes- Kinesics, Chronemics, Proxemics, Haptics, Vocalics/Paralanguage, Artifacts, Graphic and Visual Communication 2.3 Based on the number of people involved: Interpersonal, and Group Communication.	CO3

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
TSO 2g. Differentiate Intrapersonal and Interpersonal Communication with Case Studies TSO 2h. List the advantages and disadvantages of Group Communication.	2.4 Case Studies from Bhagwat Geeta's different conversations with Krishna and Arjun during the war (IKS).	
TSO 3a. Prepare a glossary of new words from the given texts. TSO 3b. Summarize the given texts in your own words. TSO 3c. Recognize the types of sentences in the given texts. TSO 3d. Find out idioms and phrases used in the given texts. TSO 3e. Write a short biography of the given writers. TSO 3f. Identify the figures of speech used in the given texts. TSO 3g. Classify the forms of poetry. TSO 3h. Elaborate the central idea / theme of the given poems in your own words.	Unit-3.0 Reading Comprehension Comprehension, vocabulary enhancement and grammar exercises based on the reading of the following texts: Section-1 (Prose) 3.1 An Astrologer's Day by R K Narayan 3.2 Indian Civilization and Culture by M K Gandhi 3.3 The Secret of Work by Swami Vivekanand 3.4 My Struggle for an Education by Brooker T Washington Section-2 (Poetry) 3.5 Where the Mind is without Fear by R N Tagore 3.6 Ode on Solitude by Alexander Pope 3.7 Stopping by Woods on a Snowy Evening by Robert Frost 3.8 A Psalm of Life by H W Longfellow	CO4 CO5
TSO 4a. Form new words adding prefix and suffix to the given root words. TSO 4b. Write synonyms and antonyms of the given words. TSO 4c. Use the given idioms and phrases in your own sentences. TSO 4d. Distinguish between acronym and abbreviation. TSO 4e. Prepare a list of technical jargons of your respective branch. TSO 4f. Identify the parts of speech of the specific words in the given sentences. TSO 4g. Fill in the blanks with suitable verb forms in the given sentences. TSO 4h. Transform the given sentences as directed. TSO 4i. Punctuate the given paragraphs.	Unit-4.0 Vocabulary and Grammar 4.1 Word Formation: Prefix, Suffix, Acronym 4.2 Synonyms, Antonyms, Homonyms, One Word Substitution, Idioms and Phrases 4.3 Technical Jargons -Related to the respective program 4.4 Parts of speech 4.5 Time and Tense 4.6 Transformation: Voice, Narration, Removal of 'Too', Question Tag 4.7 Punctuation	CO4, CO5
TSO 5a. Write the precis of the given passage with suitable title. TSO 5b. Draft letters and applications for the given purpose. TSO 5c. Compose E-mails, Notices, Memos, and Circulars.	Unit-5.0 Professional Writing 5.1 Precis Writing 5.2 Business Letters / Applications 5.3 Drafting E-mails, Notices, Memos, Circulars	CO5

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
TSO 5d. Prepare reports of the projects of your respective branch. TSO 5e. Write a report on the events organized in your institute.	5.4 Report Writing: Project and Event/ Incident Report Writing	
Part -B (हिंदी) TSO 1a सम्प्रेषण कौशल का अर्थ स्पष्ट कर सकेंगे. TSO 1b भाव एवं सम्प्रेषण में अंतर बता पाएँगे. TSO 1c सम्प्रेषण की प्रक्रिया का उल्लेख कर सकेंगे. TSO 1d श्रवण अविद्यक्ति, वाचन और लेखन की अवधारणा को स्पष्ट कर सकेंगे. TSO 1e सम्प्रेषण कौशल के निर्धारक तत्वों का विवेचन कर सकेंगे. TSO 1f प्रभावशाली सम्प्रेषण के सिद्धांतों का समावेश अपने वार्तालाप में कर सकेंगे.	Units-1.0: सम्प्रेषण सिद्धान्त एवं व्यवहार 1.1 सम्प्रेषण : परिचय , अर्थ एवं परिभाषा 1.2 सम्प्रेषण की प्रक्रिया एवं तत्व 1.3 सम्प्रेषण के प्रकार : औपचारिक एवं अनौपचारिक, शाब्दिक एवं अशाब्दिक 1.4 प्रभावशाली सम्प्रेषण के सिद्धांत एवं सम्प्रेषण व्यवधान कुरुक्षेत्र में श्रीकृष्ण- अर्जुन संवाद महाभारत युद्ध प्रारम्भ होने से पहले कुरुक्षेत्र में श्री कृष्ण ने अर्जुन के प्रश्नों के उत्तर देते हुए जीवन के सूत्र समझाए थे। ये उपदेश श्रीमद्भगवद् गीता में मिलते	CO1, CO2, CO3
TSO 2a तकनीकी कौशल एवं व्यवहार कौशल में अन्तर बता पाएँगे . TSO 2b व्यवहार कौशल का महत्व स्पष्ट कर पाएँगे . TSO 2c आत्मा जागरूकता एवं आत्मा विश्लेषण का विवेचन सोदाहरण कर पाएँगे . TSO 2d भावनात्मक बुद्धिमत्ता एवं करुणा, अनुकूलनशीलता एवं लचीलापन का विकास कर पाएँगे. TSO 2e दैनिक जीवन में अनुकूलनशीलता एवं लचीलापन को आत्मसात कर पाएँगे .	Unit-2.0: व्यावसायिकउत्कृष्टता हेतु व्यवहार कौशल 2.1 परिचय : तकनीकी कौशल एवं व्यवहार कौशल 2.2 व्यवहार कौशल का महत्त्व 2.3 जीवन कौशल : आत्म जागरूकता एवं आत्म विश्लेषण 2.4 वनात्मक बुद्धिमत्ता एवं करुणा, अनुकूलनशीलता एवं लचीलापन, व्यवहार कौशल का उपयोग श्रीराम केवट संवाद श्रीराम जब लक्ष्मण और सीता के साथ वन गमन के लिए प्रस्थान करते हैं तब सरयू नदी के पार उतारने लिए केवट से अनुरोध करते हैं।	CO1
TSO 3a पठित गद्यांश एवं पद्यांश से प्राप्त नयी शब्दावली विकसित कर पाएँगे TSO 3b दिए गये कहानियों, कविताओं एवं निबंधों का सारांश अपने शब्दों में लिख पाएँगे. TSO 3c दिए गये कहानियों, कविताओं एवं निबंधों में प्रयुक्त मुहावरों एवं अलंकारों को बता पाएँगे . TSO 3d कविताओं का भावार्थ स्पष्ट कर पाएँगे .	Unit-3.0: पाठ-बोध : शब्दावली परिवर्धन एवं व्याकरण अभ्यास 3.1 नमक का दरोगा, ईदगाह – मुंशी प्रेमचंद 3.2 बात (निबंध)- प्रताप नारायण मिश्र 3.3 वह प्रदीप जो दिख रहा है झिलमिल दूर नहीं है – रामधारी सिंह दिनकर 3.4 नर हो न निराश करो मन को – मैथिलीशरण गुप्त 3.5 कबीर के दोहे -काल्ह करे सो आज कर , जाति न पूछो साधू की , ऐसी वाणी बोलिए	CO4
TSO 4a अपनी शाखा से सम्बन्धित तकनीकी शब्दावली का चयन कर पाएँगे . TSO 4b पर्यायवाची एवं विलोम शब्दों से सम्बंधित शब्दावली तैयार कर सकेंगे . TSO 4c दिये गये गद्यांशों में विराम चिह्नों का सही प्रयोग कर पाएँगे .	Unit-4.0: शब्दावली एवं व्याकरण 2 Hrs 4.1 सामान्य शब्दावली 4.2 प्रशासनिक शब्दावली 4.3 शब्द भेद, अनेक शब्दों के लिए एक शब्द 4.4 विराम चिन्ह 4.5 मुहावरें एवं कहावतें	CO4 CO5

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
TSO 5a दिए गये दिए गये गद्यांशों का संक्षेपण कर पाएँगे . TSO 5b विभिन्न प्रकार के पत्रों, आवेदनों, सूचनाओं, विज्ञापितियों को लिख पाएँगे . TSO 5c अपनी शाखा से सम्बंधित प्रतिवेदन लेखन कर पाएँगे . TSO 5d अपने संस्थान में हुए आयोजनों का प्रतिवेदन लिख पाएँगे.	Unit-5.0: लेखन कौशल 5.1 सार- लेखन 5.2 औपचारिक एवं व्यवसायिक पत्र लेखन 5.3 प्रारूप लेखन – सूचना, निविदा लेखन, प्रतिवेदन लेखन, बायोडाटा	CO5

Note: One major TSO may require more than one theory session/period.

K) Suggested Laboratory (Practical) Session Outcomes (LSOs) and List of Practical: P2400104

These practical's are common for both Part – A and Part -B.

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
LSO1.a Identify the emotions of the speakers.	1	Emotions of the speakers.	CO1
LSO2.a Interpret instructions of audio transcripts.	2	Instructions of audio transcripts.	CO1
LSO3.a Solve the language puzzles based on the audio transcript.	3	Language puzzles.	CO1
LSO4.a Repeat words on language lab software after listening to them.	4	Repetition of words	CO1
LSO5.a Summarize the excerpt in their own words.	5	Summarize the excerpt.	CO1
LSO6.a Answer the questions based on the listening excerpt	6	Listening excerpt	CO2
LSO7.a Differentiate the sounds of minimal pairs, syllables, words, etc.	7	Sounds of minimal pairs, syllables words etc.	CO2
LSO8.a Pronounce the words/ sentences correctly based on the phonetic transcription.	8	Phonetic transcription.	CO2
LSO9.a Read out the words and sentences based on stress and intonation marks.	9	Stress and intonation.	CO2
LSO10.a Apply the paralanguage codes in verbal dialogues to show different emotions.	10	Paralanguage Codes	CO2
LSO11.a Integrate the non-verbal codes in their verbal dialogues.	11	Non-verbal Codes	CO2
LSO12.a Correct the verbal and non-verbal presentations of their peer while giving feedback.	12	Feedback on Presentations	CO2
LSO13.a Differentiate the sounds of minimal pairs, syllables, words, etc.	13	Syllables and Words	CO2
LSO14.a Locate the dictated words from the excerpt.	14	Dictated words	CO3

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
LSO15.a Arrange the correct and logical sequence of the jumbled sentences.	15	Jumbled Sentences.	CO3
LSO16.a Read the given texts aloud with proper pauses and proper pronunciation.	16	Pronunciation.	CO3
LSO17.a Compare the point of view with their peers.	17	Point of view of Self and Peers	CO4
LSO18.a Identify the main ideas of the excerpt	18	Main ideas of the excerpt	CO4
LSO19.a Prepare a list of technical jargon and register specific to their program /industry.	19	Technical Jargons	CO5
LSO20.a Write the specifications of the machines/ equipment available in the workshops/labs.	20	Specifications of the machines/ equipment	CO5
LSO21.a Write a report on the projects of their respective branches.	21	Report on the Projects	CO5

L) Suggested Term Work and Self-Learning: S2400104

Some sample suggested assignments, micro-projects, and other activities are mentioned here for reference.

a. Assignments: Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

1. Visit your institute's library/ web search and enlist the books, journals, and magazines related to your respective branches to prepare a bibliography consisting of names of the authors, titles of the books, publication, and place of publication.
2. SWOT Analysis: Analyze yourself concerning your strengths and weaknesses, opportunities, and threats for your communication.
3. Interview an eminent personality and write a report on it.
4. Deliver a seminar for 10-12 minutes using PPT on the topic given.
5. Prepare your timetable for a week and prioritize your activities.
6. Visit any historical places/offices/farms/industries/development sites etc. near your city and prepare a report on it.
7. Prepare a video of effective professional communication after listening to Bhagwat Geeta's conversation between Arjun and Krishna in the war field (IKS).

b. Micro Projects:

- i. Book review – students should read a book and then write their reviews about the book and present it in the class.
- ii. Interview any successful person in your locality in context with his life journey, inspiration social contribution, role model, and keys to success.
- iii. Prepare a register of technical jargon of the industry related to their specific branch.
- iv. Prepare a presentation on environmental issues of their locality with their solution.
- v. Listen to the dialogues of the conversation between Krishna and Arjun before the war for specific and effective Communication (IKS)

c. Other Activities:

1. Arrange a Blood Donation Camp in collaboration with a blood bank and prepare a communication plan for the same.

2. Organize a cleanliness campaign in your campus premises and nearby places and prepare hoardings, boards, collages, and posters for the same.
3. Organize a campaign on educational awareness in the nearby places and prepare an advertising campaign for the same.

d. Self- learning topics:

- Listen to different Conversations of Ramayana, (the Rama -Bharat conversation before going to Vanvaas) Mahabharata (Bheem and Arjun Conversation during War), and Bhagwat Geeta (discussions of Strategies before War) to develop effective communication Skills (IKS)
- Collect new words from daily newspapers.
- Observe negotiation skills in the nearby shops.
- Watch educational channels for improving English communication.

M) Suggested Course Evaluation Matrix: The course teacher has to decide and use the appropriate assessment strategy and its weightage in theory, laboratory, and Term Work for ensuring CO attainment. The response/performance of each student in each of these designed activities is to be used to calculate CO attainment. This matrix has been prepared considering both Part – A and Part -B.

COs (Includes in Part -A & B)	Course Evaluation Matrix						
	Theory Assessment (TA)**		Term Work Assessment (TWA)			Lab Assessment (LA)#	
	Progressive Theory Assessment (PTA) Class/Mid Sem Test	End Theory Assessment (ETA)	Term Work & Self Learning Assessment			Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)
			Assignments	Micro Projects	Other Activities*		
CO-1	15%	20%	15%	20%	-	20%	20%
CO-2	10%	15%	10%	20%	25%	10%	20%
CO-3	20%	25%	15%	20%	25%	15%	20%
CO-4	25%	20%	30%	20%	25%	15%	20%
CO-5	30%	20%	30%	20%	25%	40%	20%
Total Marks	30	70	20	20	10	20	30
			50				

Legend:

*: Other Activities include self-learning, seminars, visits, surveys, product development, software development, etc.

**.: Mentioned under point- (N)

#: Mentioned under point-(O)

Note:

- The percentages given are approximate.
- In case of Micro Projects and End Laboratory Assessment (ELA), the achieved marks will be equally divided in all those COs mapped with total experiments.
- For CO attainment calculation indirect assessment tools like course exit survey need to be used which comprises of questions related to achievement of each COs.

N) Suggested Specification Table for End Semester Theory Assessment: Specification table represents the reflection of sample representation of assessment of cognitive domain of full course.

Unit Title and Number	Total Classroom Instruction (CI) Hours	Relevant COs Number (s)	Total Marks	ETA (Marks)		
				Remember (R)	Understanding (U)	Application & above (A)
(Part - A) Unit-1.0 Communication Theory and Practice	5	CO1, CO2	10	3	3	4

Unit Title and Number	Total Classroom Instruction (CI) Hours	Relevant COs Number (s)	Total Marks	ETA (Marks)		
				Remember (R)	Understanding (U)	Application & above (A)
Unit- 2.0 Types of Communication	5	CO3	8	2	2	4
Unit-3.0 Reading Comprehension	8	CO4, CO5	12	3	3	6
Unit-4.0 Vocabulary and Grammar	7	CO4, CO5	10	3	3	4
Unit-5.0 Professional Writing	7	CO5	10	3	4	3
(Part-B) Units-1.0: सम्प्रेषण सिद्धान्त एवं व्यवहार	2	CO1, CO2	3	1	1	1
Unit-2.0: व्यावसायिक उत्कृष्टता हेतु व्यवहार कौशल	2	CO3	3	1	1	1
Unit-3.0: पाठ-बोध :शब्दावली परिवर्धन, एवं व्याकरण अभ्यास	5	CO4, CO5	5	1	1	3
Unit-4.0: शब्दावली एवं व्याकरण	4	CO5	5	1	1	3
Unit-5.0: लेखन कौशल	3	CO5	4	2	1	1
Total	48	-	70	20	20	30

Note: Similar table can also be used to design class/mid-term/ internal question paper for progressive assessment.

O) Suggested Assessment Table for Laboratory (Practical):

S. No.	Laboratory Practical Titles	Relevant COs Number (s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
1	Emotions of the Speakers.	CO1	30	60	10
2	Instructions of Audio Transcripts.	CO1	30	60	10
3	Language Puzzles.	CO1	30	60	10
4	Repetition of Words.	CO1	30	60	10
5	Summarize the Excerpts.	CO1	30	60	10
6	Listening Excerpts.	CO2	30	60	10
7	Sounds of minimal Pairs, Syllables and Words etc.	CO2	30	60	10
8	Phonetic Transcription.	CO2	30	60	10

S. No.	Laboratory Practical Titles	Relevant COs Number (s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
9	Stress and Intonation.	CO2	30	60	10
10	Paralanguage Codes	CO2	30	60	10
11	Non-Verbal Codes	CO2	30	60	10
12	Verbal and Non-Verbal Presentations	CO2	30	60	10
13	Sounds of minimal pairs, syllables and words	CO2	30	60	10
14	Locate the Dictated Words	CO3	30	60	10
15	Jumbled Sentences.	CO3	30	60	10
16	Pronunciation.	CO3	30	60	10
17	Compare the Point of view with their Peers.	CO4	30	60	10
18	Main Ideas of the Excerpt	CO4	30	60	10
19	Technical Jargons	CO5	30	60	10
20	Specifications of the machines/ equipment	CO5	30	60	10
21	Report on the Projects	CO5	30	60	10

Legend:

PRA*: Process Assessment

PDA**: Product Assessment

Note: This table can be used for both end semester as well as progressive assessment of practical. Rubrics need to be prepared by the course teacher for each experiment/practical to assess the student performance.

P) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately selected, as per the requirement of the content/outcome. Some of them are Improved Lecture, Tutorial, Case Method, Group Discussion, Industrial visits, Industrial Training, Field Trips, Portfolio Based, Learning, Role Play, Live Demonstrations in Classrooms, Lab, Field Information and Communications Technology (ICT)Based Teaching Learning, Blended or flipped mode, Brainstorming, Expert Session, Video Clippings, Use of Open Educational Resources (OER), MOOCs etc.

Q) List of Major Laboratory Equipment, Tools and Software:

S. No.	Name of Equipment, Tools and Software	Broad Specifications	Relevant Experiment/Practical Number
1.	High end computers	Intel® Core™ i5-9400 (6-Core, 9MB Cache, up to 4.1GHz with Intel® Turbo Boost Technology) RAM: 8GB DDR 4 HDD: 3.5" 1TB 7200RPM SATA Hard Drive OS: Windows 10 Pro 64bit OEM License Other ports: Gigabyte LAN card	1 to 21
2.	Language Lab software	Teacher console supporting audio-visual language lab	1 to 21
3.	Printer	LaserJet printer	1 to 21
4.	Head Phones with microphones	Logitech H111 wired on headphones	1 to 21
5.	Computer Furniture	Computer Desk, chair	1 to 21
6.	Smart Projector	Standard Specification	1 to 21

R) Suggested Learning Resources:**(a) Books:**

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Communication Skills in English (AICTE Prescribed Text Book)	Dr. Anjana Tiwari	Khanna and Khanna, New Delhi
2.	Business Communication	Dr. Nishith Rajaram Dubey, Anupam Singh	Publisher: Indra Publishing House, 2023 ISBN- 978-93-93577-69-6
3.	Communication Skills	Sanjay Kumar & Pushap Lata	Oxford University Press, India
4.	Employability Skills	Dr. Nishith Rajaram Dubey, Anupam Singh	Indra Publishing House, 2023 ISBN - 978-93-93577-68-9
5.	Technical Communication for Engineers	Shalini Verma	S. Chand
6.	English Grammar	Raymond Murphy	S. Chand
7.	British English Grammar and Composition	Dr. Ashok Kumar Singh	Student's Friends
8.	A Textbook of English Phonetics	T. Balasubramanian	Macmillan Publishers
9.	Thesaurus of English Words and Phrases	Roget	Simon and Schuster
10.	Better English Pronunciation	J. D. O'Connor	Cambridge: Cambridge University Press, 1980
11.	An English Grammar: Comprehending Principles and Rules	Lindley Murray.	London: Wilson and Sons, 1908.

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
12	Effective Communication Skills	Kulbhushan Kumar	Khanna Publishing House, New Delhi (Revised Edition 2018)
13	Examine your English	Margaret M. Maison	Orient Longman: New Delhi, 1964
14	Collin's English Dictionary	Harper Collins	Harper Collins, Glasgow
15	संप्रेषण कौशल	डॉ प्रवीण कुमार अग्रवाल , डॉ अवनीश कुमार मिश्रा	साहित्य भवन पब्लिकेशन : आगरा
16	आधुनिक हिंदी व्याकरण और रचना	डॉ वासुदेवनंदन प्रसाद	भारती भवन पब्लिकेशन

(b) Online Educational Resources:

1. https://www.academia.edu/37871134/COMMUNICATION_SKILLS_1ST_YR_2_pdf
2. [https://socialsci.libretexts.org/Courses/Butte_College/Exploring_Intercultural_Communication_\(Grothe\)/05%3A_Nonverbal_Processes_in_Intercultural_Communication/5.02%3A_Types_of_Nonverbal_Communication](https://socialsci.libretexts.org/Courses/Butte_College/Exploring_Intercultural_Communication_(Grothe)/05%3A_Nonverbal_Processes_in_Intercultural_Communication/5.02%3A_Types_of_Nonverbal_Communication)
3. <http://muhamadjaelani35.blogspot.com/2014/11/inquiry-letter-order-letter-complaint.html?m=1>
4. <https://www.slideshare.net/sundaredu/barriers-of-communication-53545680>
5. <https://allpoetry.com/where-the-mind-is-without-fear>
6. <https://www.poetryfoundation.org/poems/46561/ode-on-solitude>
7. <https://www.poetryfoundation.org/poems/44644/a-psalm-of-life>
8. <https://www.poetryfoundation.org/poems/42891/stopping-by-woods-on-a-snowy-evening>
9. <https://www.hindisamay.com/content/>
10. <http://kavitakosh.org/>
11. <https://bundelkhand.in/maithilisharan-gupt/nar-ho-na-nirash-karo-man-ko>
12. <https://etc.usf.edu/lit2go/92/up-from-slavery/1575/chapter-3-the-struggle-for-an-education/>
13. <https://oursmartstudy.com/english-chapter-1-class-12-pdf-download/>
14. [https://ve-iitg.vlabs.ac.in/Listening%20Skills\(Procedure\).html](https://ve-iitg.vlabs.ac.in/Listening%20Skills(Procedure).html)
15. <https://nptel.ac.in/courses/109104031>

Note: Teachers are requested to check the creative commons license status/ financial implications of the suggested, online educational resources before use by the students.

(c) Others:

1. <https://nptel.ac.in/courses/>

- A) **Course Code** : 2418105 (T2418105/P2418105/S2418105)
- B) **Course Title** : Fundamentals of IT and C Programming
(ELX, ELX (R), AE, FCT, EE)
- C) **Pre- requisite Course(s)** :
- D) **Rationale** :

Information technology is a term that describes the entire range of information generation, storage, transmission, retrieval, and processing. Most organizations in the industry, business, non-profit organizations, and government departments now rely heavily on their information systems (IS) and information technology (IT). Thus, student must possess basic skills to use Information technology and Information systems.

Looking to the current IT practices in business it is also necessary for student to learn basic programming skills that includes building logic, develop algorithms and then write programs. The 'C' has been widely used as a general-purpose language to develop basic and advanced applications, Hence this course is designed keeping in view the development of a basic understanding of programming skills in students with the help of the 'C' programming language. The course is designed to create a base to develop foundation skills in IT and programming languages.

- E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following course outcomes by the learners. For this, the learners are expected to perform various activities related to three learning domains (Cognitive, Psychomotor and Affective) in classroom/ laboratory/ workshop/ field/ industry.

After completion of the course, the students will be able to-

- CO-1 Appraise computer systems and its applications for various educational, business, and industrial domain.
- CO-2 Setup a small computer Network.
- CO-3 Write 'C' Program to solve given arithmetic expression
- CO-4 Develop 'C' program Using control structure
- CO-5 Develop 'C' programs using arrays.
- CO-6 Create functions in C programs for modular programming approach.

F) Suggested Course Articulation Matrix:

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
CO-1	1	-	-	-	1	2	2		
CO-2	1	1	1	2	-	-	1		
CO-3	1	2	1	1	-	-	-		
CO-4	1	3	2	1	-	-	-		
CO-5	1	3	2	1	-	-	-		
CO-6	1	2	2	1	-	-	-		

Legend: High (3), Medium (2), Low (1) and No mapping (-)

* PSOs will be developed by respective programme coordinator at institute level. As per latest NBA guidelines, formulating PSOs is optional.

G) Teaching & Learning Scheme:

Course Code	Course Title	Scheme of Study (Hours/Week)					
		Classroom Instruction (CI)		Lab Instruction (LI)	Notional Hours (TW+ SL)	Total Hours (CI+LI+TW+SL)	Total Credits (C)
		L	T				
2418105	Fundamentals of IT and C Programming	03	-	04	02	09	06

Legend:

CI: Classroom Instruction (Includes different instructional/implementation strategies i.e. Lecture (L), Tutorial (T), Case method, Demonstrations, Video demonstration, Problem based learning etc. to deliver theoretical concepts)

LI: Laboratory Instruction (Includes experiments/practical performances /problem-based experiences in laboratory, workshop, field or other locations using different instructional/Implementation strategies)

Notional Hours: Hours of engagement by learners, other than the contact hours for ensuring learning.

TW: Term Work (includes assignments, seminars, micro projects, industrial visits, any other student activities etc.)

SL: Self Learning, MOOCs, spoken tutorials, online educational resources etc.

C: Credits = (1 x CI hours) + (0.5 x LI hours) + (0.5 x Notional hours)

Note: TW and SL have to be planned by the teacher and performed by the learner under the continuous guidance and feedback of teacher to ensure outcome of learning.

H) Assessment Scheme:

Course Code	Course Title	Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
		Theory Assessment(TA)		Term Work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
		Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Internal	External	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
2418105	Fundamentals of IT and C Programming	30	70	20	30	20	30	200

Legend:

PTA: Progressive Theory Assessment in classroom (includes class test, mid-term test and quiz using online/offline modes)

PLA: Progressive Laboratory Assessment (includes process and product assessment using rating Scales and rubrics)

TWA: Term work & Self Learning Assessment (Includes assessment related to student performance in assignments, seminars, micro projects, industrial visits, self-learning, any other student activities etc.)

Note:

- ETA & ELA are to be carried out at the end of the term/ semester.
- Term Work is to be done by the students under the guidance of internal faculty but its assessment will be done **internally (40%)** as well as **externally (60%)**. Assessment related to planning and execution of Term Work activities like assignment, micro project, seminar and self-learning is to be done by internal faculty (Internal Assessment) whereas assessment of output/product/ presentation related to these activities will be carried out by external faculty/expert (External Assessment). However, criteria of internal as well as external assessment may vary as per the requirement of respective course. For valid and reliable assessment, the internal faculty should prepare checklist & rubrics for these activities.

- I) Course Curriculum Detailing:** This course curriculum detailing depicts learning outcomes at course level and session level and their attainment by the students through Classroom Instruction (CI), Laboratory Instruction (LI), Term Work (TW) and Self Learning (SL). Students are expected to demonstrate the attainment of Theory Session Outcomes (TSOs) and Lab Session Outcomes (LSOs) leading to attainment of Course Outcomes (COs) upon the completion of the course. While curriculum detailing, NEP 2020 related reforms like Green skills, Sustainability, Multidisciplinary aspects, Society connect, Indian Knowledge System (IKS) and others must be integrated appropriately.

J) Theory Session Outcomes (TSOs) and Units: T2418105

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
<i>TSO 1a.</i> Describe the anatomy of the Computer System. <i>TSO 1b.</i> List the different Input and Output devices. <i>TSO 1c.</i> Identify the different types of memory in computer systems. <i>TSO 1d.</i> Explain communication process between different components of a computer. <i>TSO 1e.</i> Describe the functionalities of a computer system. <i>TSO 1f.</i> Use Internet digital Platforms	Unit-1.0 Basics of Computer System 1.1 Computer System and its Components. - Generation of Computer - Anatomy of Computer Systems - Input and output device - Motherboard - Peripherals - Backend and Front end of System Unit 1.2. Storage device in Computer System - Primary Storage - Secondary Storage 1.3. CPU Components - Register - Control Unit - ALU 1.4. Types of Bus - Address Bus - Data Bus - Control Bus 1.5 Search Engine - Introduction - Search Query - Applications of Internet Digital Platforms (BHIM, Digi-Locker, m-paravian, NPTEL etc.)	CO-1
<i>TSO 2a.</i> Compare various computer network topologies <i>TSO 2b.</i> Differentiate types of networks. <i>TSO 2c.</i> Compare internet and intranet <i>TSO 2d.</i> Explain IP addressing system. <i>TSO 2e.</i> Explain functions of Networking Devices.	Unit 2.0 Basic Network Concepts 2.1 Network Topologies Bus, Mesh, Star, Ring, Hybrid 2.2 Types of Computer Networks LAN, WAN 2.4 Internet & Intranet IP Addressing system and URL, Internet, Intranet, Comparison between Intranet & Internet 2.3 DNS - Introduction, Need - Domain Names & its types 2.5 Networking Devices (Types and use) Switch, Router, Gateway, Modem, Repeater, Wireless Access Point, NIC	CO-2
<i>TSO 3a.</i> Write Algorithm to solve the given problem.	Unit 3.0 Basics of 'C' Programming and control structures	CO-3

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
<i>TSO 3b.</i> Write simple 'C' program to solve the given arithmetic expressions <i>TSO 3c.</i> Write a simple 'C' Program demonstrating the given data type conversion <i>TSO 3d.</i> Write I/O Statements for the given data. <i>TSO 3e.</i> Write a 'C' program using a decision-making structure for two-way branching to solve the given problem. <i>TSO 3f.</i> Write a 'C' program using a decision-making structure for multi-way branching to solve the given problem. <i>TSO 3g.</i> Apply loop statements to solve the given iterative problem in 'C' program. <i>TSO 3h.</i> Use appropriate statements to change the program flow in the given loop.	3.1 Fundamentals of algorithms: Notion of an algorithm. Pseudo-code conventions like assignment statements and basic control structures. 3.2 Flowchart: Flowchart, Symbols of flowchart, Guidelines for preparing Flowchart 3.3 Introduction to C: General Structure of a 'C' program Data Concepts: Character set, tokens, keywords, Identifiers, Variables, Constant, data types, C operators, Arithmetic operators, Arithmetic expression, declaring variables, and data type conversion. 3.4 Basic Input output: Input and Output statements, using printf() and scanf(), character input/output statements, Input/output formatting, Use of comments 3.5 Decision making and branching: Relational and logical operators, if statement, if else statement, nested if-else, if-else ladder' The switch statement 3.6 Looping: While loop, Do... While loop For loop, Go to statement, Use of break and continue statements	
<i>TSO 4a.</i> Write statements to read, write the given array. <i>TSO 4b.</i> Manipulate the given array of characters and numbers. <i>TSO 4c.</i> Use pointers to access memory locations for solving the given problem.	Unit 4.0 Array and Pointer 4.1 Characteristics of an array, One dimension and two-dimension arrays, Array declaration and Initialization 4.2 Array of characters, Operation on array Character and String input/output Concepts of pointers: declaring, initializing, accessing.	CO-4
<i>TSO 5a.</i> Use the given Library function. <i>TSO 5b.</i> Develop user defined functions for the given problem. <i>TSO 5c.</i> Write 'C' codes to pass the given function parameters using "call by value" and "call by reference" approach. <i>TSO 5d.</i> Write recursive function for the given problem.	Unit 5.0 Concept and Need of Functions Library functions: Math functions, String handling functions, other miscellaneous functions. Writing User defined functions, scope of variables. Parameter passing: call by value, call by reference. Recursive functions	CO-5

Note: One major TSO may require more than one Theory session/Period.

K) Suggested Laboratory (Practical) Session Outcomes (LSOs) and List of Practical: P2418105

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
<i>LSO 1.1.</i> install device driver. <i>LSO 1.2.</i> Install given software on your system. <i>LSO 1.3.</i> Perform Registration process of digital India platform.	1.	1.1 Identify specifications of various types of computer systems available in your institute. 1.2 Install Printer, scanner driver. 1.3 Install any two freeware or open-source software/tool by using web browser 1.4 Use Digital India Platforms: BHIM, Dig-Locker, m-parivahan, NPTEL.	CO-1
<i>LSO 2.1.</i> List various types of networking devices in your Institute. <i>LSO 2.2.</i> make a small local area network.	2.	2.1 Connect two/three computers to form a network using wire/wireless connectivity and configure it.	CO-2
<i>LSO 3.1.</i> Write and execute simple 'C' program. <i>LSO 3.2.</i> Use scanf() and printf() functions in 'C' programs. <i>LSO 3.3.</i> Write C Program using Decision Making and two-way branching statements. <i>LSO 3.4.</i> Write C Program using "switch-case" statement for multi-way branching. <i>LSO 3.5.</i> Use the "if" and "Switch" statements appropriately for decision making in C Program. <i>LSO 3.6.</i> Write and execute C programs using various types of loop statements to solve iterative problems.	3.	3.1 Write 3 different C –Program to demonstrate use of Arithmetic expression, constant, variable and Increment/ decrement operators. 3.2 Write a program to- a. Determine whether a given year is a leap year or not. b. Determine whether a string is palindrome. c. Find the greatest of the three numbers using conditional operators. d. Find if a given character is vowel (use if-else ladder). 3.3 Using switch statement- Write program to: Print day of week by taking number from 1 to 7. 3.4 Write Program to: a. Find sum of digits of a given number. b. Find Fibonacci series for given number. c. Write a program to produce the following output: 1 2 3 4 5 6 7 8 9 10	CO-3, CO-4
<i>LSO 4.1.</i> Write and execute C programs using one-dimension array. <i>LSO 4.2.</i> Write and execute C program using two-dimensional array.	4	4.1 Develop a Program to: a. Sort list of 10 numbers. b. Perform addition of 3x3 matrix.	CO-5
<i>LSO 5.1.</i> Write C program using different types of library functions to solve given problem.	5.	5.1 Develop Program to demonstrate: a. Use of String handling functions. b. Use of Mathematical functions.	CO-6

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
LSO 5.2. Write C program to Create and use user defined functions		c. Use of other miscellaneous functions. 5.2 Develop a Program to: a. Create a function to find GCD of given number. Call this function in a program. 5.3 Find Factorial of given number using recursion.	

L) Suggested Term Work and Self Learning: S2418105 Some sample suggested assignments, micro project and other activities are mentioned here for reference.

a. Assignments: Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

b. Micro Projects:

1. Identify specifications of various types of computer systems in your Institute .
2. Prepare a report on computer peripherals and its usage of your computer lab.
3. Prepare a presentation on network topology.
4. Prepare a survey report to identify various types of networking devices available in your Institute.
5. Make a calculator using 'C' programming.

c. Other Activities:

1. Seminar Topics: -
 - "Future of IT"
 - "Scope of 'C' programming in other Engineering disciplines"
2. Prepare a poster presentation on Computer hardware and peripherals.
3. Prepare a report on Open Source software available for Electronics Engineering.
4. Product Development: Development of projects for real life problem solution using 'C' programming.

d. Self-Learning Topics:

1. System and application software.
2. Scope of 'C' programming in real world.

- M) Suggested Course Evaluation Matrix:** The course teacher has to decide and use appropriate assessment strategy and its weightage in theory, laboratory and Term Work for ensuring CO attainment. The response/performance of each student in each of these designed activities is to be used to calculate CO attainment.

COs	Course Evaluation Matrix						
	Theory Assessment (TA)**		Term Work Assessment (TWA)			Lab Assessment (LA)#	
	Progressive Theory Assessment (PTA) Class/Mid Sem Test	End Theory Assessment (ETA)	Term Work & Self Learning Assessment			Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)
			Assignments	Micro Projects	Other Activities*		
CO-1	10%	10%	10%	100%	100%	10%	-
CO-2	10%	10%	10%			10%	-
CO-3	10%	10%	15%			25%	30%
CO-4	25%	25%	25%			25%	40%
CO-5	25%	25%	20%			15%	30%
CO-6	20%	20%	20%	-	-	15%	
Total Marks	30	70	20	20	10	20	30
			50				

Legend:

*: Other Activities include self- learning, seminar, visits, surveys, product development, software development etc.

**: Mentioned under point- (N)

#: Mentioned under point-(O)

Note:

- The percentages given are approximate.
- In case of Micro Projects and End Laboratory Assessment (ELA), the achieved marks will be equally divided in all those COs mapped with total experiments.
- For CO attainment calculation indirect assessment tools like course exit survey need to be used which comprises of questions related to achievement of each COs.

- N) Suggested Specification Table for End Semester Theory Assessment:** Specification table represents the reflection of sample representation of assessment of cognitive domain of full course.

Unit Title and Number	Total Classroom Instruction (CI) Hours	Relevant COs Number(s)	Total Marks	ETA (Marks)		
				Remember (R)	Understanding (U)	Application & above (A)
Unit-1.0 Basics of Information System	5	CO-1	7	3	3	1
Unit 2.0 Basic Network Concepts	5	CO-2	7	3	2	2
Unit 3.0 Basics of 'C' Programming and control structures	18	CO-3 and CO-4	28	8	8	12
Unit 4.0 Array and Pointer	12	CO-5	17	3	4	10
Unit 5.0 Concept and need of functions	8	CO-6	11	3	2	6
Total	48	-	70	20	19	31

Note: Similar table can also be used to design class/mid-term/ internal question paper for progressive assessment.

O) Suggested Assessment Table for Laboratory (Practical):

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA /ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
1.	Identify specifications of various types of computer systems available in your institute.	CO-1	40	50	10
2.	Install Printer driver.	CO-1	40	50	10
3.	Install any two freeware or open-source software/tool by using web browser	CO-1	40	50	10
4.	Use Digital India Platforms: BHIM, Digi-Locker, m-parivahan, NPTEL.	CO-1	30	60	10
5.	Connect two/three computers to form a network using wire/wireless connectivity and configure it.	CO-2	40	50	10
6.	Write 3 different C –Program to demonstrate Arithmetic expression, constant, variable and Increment/decrement operator.	CO-3	50	40	10
7.	Write a program to- a. Determine whether a given year is a leap year or not. b. Determine whether a string is palindrome. c. Find the greatest of the three numbers using conditional operators. d. Find if a given character is a vowel (use if-else ladder).	CO-3	50	40	10
8.	Write program to: Print day of week by taking number from 1 to 7.	CO-3	50	40	10
9.	Write Program to: (a) Find sum of digits of a given number. (b) Find Fibonacci series for given number. (c) Write a program to produce the following output: <pre> 1 2 3 4 5 6 7 8 9 10 </pre>	CO-3	50	40	10
10.	Develop a Program to: a. Sort list of 10 numbers. b. Perform addition of 3x3 matrix.	CO-4	50	40	10
11.	Develop Program to demonstrate: a. Use of all String handling functions. b. Use of few Mathematical functions. c. Use of few other miscellaneous functions.	CO-5	50	40	10
12.	Develop a Program to: a. Create a function to find GCD of given number. Call this function in a program	CO-5	50	40	10
13.	Find Factorial of given number using recursion.	CO-5	50	40	10

Legend:

PRA*: Process Assessment

PDA**: Product Assessment

Note: This table can be used for both end semester as well as progressive assessment of practical. Rubrics need to be prepared by the course teacher for each experiment/practical to assess the student performance.

P) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately selected, as per the requirement of the content/outcome. Some of them are Improved Lecture, Tutorial, Case Method, Group Discussion, Industrial visits, Industrial Training, Field Trips, Portfolio Based, Learning, Role Play, Live Demonstrations in Classrooms, Lab, Field Information and Communications Technology (ICT)Based Teaching Learning, Blended or flipped mode, Brainstorming, Expert Session, Video Clippings, Use of Open Educational Resources (OER), MOOCs etc.

Q) List of Major Laboratory Equipment, Tools and Software:

S. No.	Name of Equipment, Tools and Software	Broad Specifications (No Generic) Give basic configuration or Latest	Relevant Experiment/Practical Number
1	Computer System	Any General-purpose Computer	All
5	Switch	4, 8, 12, 16 or 24 port switches with 100/1000 gbps data transfer speed	5
6	Ethernet cable	Cat 6, cat6e or above	5
8	Printer	Any printer dot matrix, inkjet or laser printer	2
9	C compiler	Turbo C/ Dev C/Others	6-13

R) Suggested Learning Resources:

(a) Books:

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1	Computer fundamentals and programming in C	Reema thareja	Oxford university press INDIA ISBN-10 : 9780199463732 ISBN-13 : 978-0199463732
2	Let us C	Yashavant Kanetkar	BPB publication, ISBN-10 : 8183331637 ISBN-13 : 978-8183331630
3	Programming in ANSI C	E. Balagurusamy	McGraw Hill education ISBN-10 : 935316513X ISBN-13 : 978-9351343202
4	Computer Fundamentals Concepts Systems and Applications 8th Edition (English, Paperback,	Priti Sinha, Pradeep Sinha	BPB Publications ISBN-13: 9788176567527 ISBN-10: 8176567523
5	Fundamentals of Computers	E Balagurusamy	McGraw Hill Education 2009, ISBN-10 : 9780070141605 ISBN-13 : 978-0070141605

(b) Open Educational Resources:

1. <https://nptel.ac.in/courses/106104128>
2. https://en.wikipedia.org/wiki/Networking_hardware
3. <https://www.javatpoint.com/computer-fundamentals-tutorial>
4. <https://www.w3schools.com/c/>

Note: Teachers are requested to check the creative commons license status/ financial implications of the suggested, online educational resources before use by the students.

(c) Others:

1. Learning Header files
2. Lab Manuals

- A) **Course Code** : 2400006 (T2400006/P2400006/S2400006)
- B) **Course Title** : **Environmental Education and Sustainable Development**
(Common for all Programmes)
- C) **Pre- requisite Course(s)** :
- D) **Rationale** :

Every creature depends on nature for their survival. It is therefore, not only essential but also moral responsibility of all of us to keep our environment clean & in a good condition. The global environmental issues such as clean water and sanitation, affordable & clean energy, sustainable cities & communities, etc. are best addresses through sustainable development goals. Environmental education is one of the primary activities to spread the concept of sustainability on a broader scope. In India, environmental education is considered as mandatory for all segment of education including technical education. Every creature depends on nature for their survival. It is therefore, not only essential but also moral responsibility of all of us to keep our environment clean & in a good condition. The concept of sustainable development is closely associated with environmental education to promote developments. Considering importance of environmental education and sustainable development, it became necessary to provide basics of these areas to the engineering graduates. The knowledge gained through this course will help the diploma students to take engineering decisions aligned to ensure sustainability of environment for next generations through proper protection of environment.

- E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following course outcomes by the learners. For this, the learners are expected to perform various activities related to three learning domains (Cognitive, Psychomotor and Affective) in classroom/ laboratory/ workshop/ field/ industry.

After completion of the course, the students will be able to-

- CO-1** Explain the importance of ecosystem for the protection of environment
- CO-2** Use relevant air & water pollution control methods to solve pollution related issues
- CO-3** Recognize relevant energy sources required for domestic & industrial application
- CO-4** Analyze the issues of climate change and its impact on sustainability
- CO-5** Apply engineering solutions/methods/legislations to reduce the activities that are harming the environment.

- F) **Suggested Course Articulation Matrix (CAM):**

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
CO-1	3	-	-	-	2	-	2		
CO-2	3	2	2	2	2	-	2		
CO-3	3	-	-	-	3	-	2		
CO-4	3	3	-	2	2	-	2		
CO-5	3	-	3	3	2	2	2		

Legend: High (3), Medium (2), Low (1) and No mapping (-)

* PSOs will be developed by respective programme coordinator at institute level. As per latest NBA guidelines, formulating PSOs is optional.

G) Teaching & Learning Scheme:

Course Code	Course Title	Scheme of Study (Hours/Week)					
		Classroom Instruction (CI)		Lab Instruction (LI)	Notional Hours (TW+ SL)	Total Hours (CI+LI+TW+SL)	Total Credits (C)
		L	T				
2400006	Environmental Education and Sustainable Development	01	-	01	01	03	02

Legend:

CI: Classroom Instruction (Includes different instructional/implementation strategies i.e. Lecture (L), Tutorial (T), Case method, Demonstrations, Video demonstration, Problem based learning etc. to deliver theoretical concepts)

LI: Laboratory Instruction (Includes experiments/practical performances /problem-based experiences in laboratory, workshop, field or other locations using different instructional/Implementation strategies)

Notional Hours: Hours of engagement by learners, other than the contact hours for ensuring learning.

TW: Term Work (includes assignments, seminars, micro projects, industrial visits, any other student activities etc.)

SL: Self Learning, MOOCs, spoken tutorials, online educational resources etc.

C: Credits = (1 x CI hours) + (0.5 x LI hours) + (0.5 x Notional hours)

Note: TW and SL have to be planned by the teacher and performed by the learner under the continuous guidance and feedback of teacher to ensure outcome of learning.

H) Assessment Scheme:

Course Code	Course Title	Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
		Theory Assessment(TA)		Term Work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
		Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Internal	External	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
2400006	Environmental Education and Sustainable Development	15	-	10	-	10	15	50

Legend:

PTA: Progressive Theory Assessment in classroom (includes class test, mid-term test and quiz using online/offline modes)

PLA: Progressive Laboratory Assessment (includes process and product assessment using rating Scales and rubrics)

TWA: Term work & Self Learning Assessment (Includes assessment related to student performance in assignments, seminars, micro projects, industrial visits, self-learning, any other student activities etc.)

Note:

- ETA & ELA are to be carried out at the end of the term/ semester.
- Term Work is to be done by the students under the guidance of internal faculty but its assessment will be done **internally (40%)** as well as **externally (60%)**. Assessment related to planning and execution of Term Work activities like assignment, micro project, seminar and self-learning is to be done by internal faculty (Internal Assessment) whereas assessment of output/product/ presentation related to these activities will be carried out by external faculty/expert (External Assessment). However, criteria of internal as well as external assessment may vary as per the requirement of respective course. For valid and reliable assessment, the internal faculty should prepare checklist & rubrics for these activities.

- I) **Course Curriculum Detailing:** This course curriculum detailing depicts learning outcomes at course level and session level and their attainment by the students through Classroom Instruction (CI), Laboratory Instruction (LI), Term Work (TW) and Self Learning (SL). Students are expected to demonstrate the attainment of Theory Session Outcomes (TSOs) and Lab Session Outcomes (LSOs) leading to attainment of Course Outcomes (COs) upon the completion of the course. While curriculum detailing, NEP 2020 related reforms like Green skills, Sustainability, Multidisciplinary aspects, Society connect, Indian Knowledge System (IKS) and others must be integrated appropriately.

J) **Theory Session Outcomes (TSOs) and Units: T2400006**

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
<i>TSO 1a.</i> Differentiate aquatic & terrestrial ecosystem <i>TSO 1b.</i> Explain structure of ecosystem <i>TSO 1c.</i> Compare food chain & web chain <i>TSO 1d.</i> Describe carbon, nitrogen, Sulphur & phosphorus cycle <i>TSO 1e.</i> Explain causes & effect of global warming	Unit-1.0 Ecosystem 1.1 Aquatic & Terrestrial ecosystem 1.2 Structure of ecosystem 1.3 Food chain & Food web 1.4 Carbon, Nitrogen, Sulphur & Phosphorous Cycle 1.5 Global warming – Causes & Effects	CO1
<i>TSO 2a.</i> Explain environmental pollution & its sources. <i>TSO 2b.</i> Assess the causes of water & air pollution in a given area <i>TSO 2c.</i> Explain the effects of water & air pollution on human, plant & animal <i>TSO 2d.</i> Take appropriate measures to prevent the pollution problems at city /municipal areas <i>TSO 2e.</i> Determine the pollution level in the environment at different seasons.	Unit-2.0 Air & Water Pollution 2.1 Traditional pollution issues- Air, Water, Noise 2.2 Water pollution 2.2.1 Sources of water pollution 2.2.2 Effects of water pollution 2.2.3 Control of water pollution 2.2.4 Physical & chemical standard of domestic water as per Indian Standard 2.3 Air pollution 2.3.1 Sources of air pollution 2.3.2 Air pollutants 2.3.3 Effects of air pollution on human, plant & animal 2.3.4 Air monitoring system 2.3.5 Air pollution control	CO2
<i>TSO 3a.</i> Describe various types renewable sources of energy <i>TSO 3b.</i> Explain solar energy & methods of harnessing <i>TSO 3c.</i> Explain wind energy and its impact on environment <i>TSO 3d.</i> Explain characteristics of biomass & its digestion process <i>TSO 3e.</i> Describe new energy sources & their application	Unit-3.0 Sustainability & Renewable Sources of Energy 3.1 Concept of sustainable development 3.2 Renewable sources of energy for sustainable development 3.3 Solar Energy 3.3.1 Features of solar thermal & PV system 3.3.2 Solar pond, Solar water heater, Solar dryer and Solar stills 3.4 Wind Energy 3.4.1 Current status & future prospects of wind energy	CO3

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
	3.4.2 Wind energy in India- Advantages and challenges of harnessing wind energy 3.4.3 Environmental benefits & limitations 3.5 Biomass 3.5.1 Types of Biomass energy sources 3.5.2 Energy content in Biomass of different types 3.5.3 Biogas production 3.6 Concept and advantages of hydroponics or aquaponics system to demonstrate soil less cultivation and integration of fish and plant cultivation. 3.7 Water conservation and sustainable development 3.8 New Energy Sources: Hydrogen energy, Ocean energy & Tidal energy	
<i>TSO 4a.</i> Describe impact of climate change on human life <i>TSO 4b.</i> Identify the factors contributing to climate change <i>TSO 4c.</i> Explain sustainable development goals to transform the world <i>TSO 4d.</i> Develop implementation strategies for action plan on climate change	Unit-4.0 Climate Change and Sustainable Development 4.1 Impact of Climate change 4.2 Factor contributing to climate change 4.3 Sustainable development Goals (SDGs) 4.4 Action Plan on Climate Change- India	CO4
<i>TSO 5a.</i> Identify the elements of a successful management system <i>TSO 5b.</i> Explain green building concept & its benefits <i>TSO 5c.</i> Apply 5R concept in a given building construction project <i>TSO 5d.</i> Explain various environment protection laws <i>TSO 5e.</i> Explain carbon foot-print & carbon credit	Unit-5.0 Environmental legislation and Sustainable Building Practices 5.1 Environment management system and Planning 5.2 Green Building concept 5.3 Green and sustainable building materials - 5R concept 5.4 Environment protection acts, legislation and Laws 5.5 Zero carbon foot-print building for sustainable construction.	CO5

Note: One major TSO may require more than one Theory session/Period.

K) Suggested Laboratory (Practical) Session Outcomes (LSOs) and List of Practical: P2400006

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
LSO 1.1. Use of Air pollutant analyzer to determine the air pollution level LSO 1.2. Collect air samples for pollution level detection	1.	Determination of air pollutants harming local environment	CO2
LSO 2.1 Use of Water pollutant analyzer to determine the water pollution LSO 2.2 Collect water samples for pollution level detection	2	Determine the water pollutants harming local environment	CO2
LSO 3.1 Prepare report on EIA of a given context and area. LSO 3.2 Collection of stakeholders view on effect on environment about a particular project/activity.	3.	Carry out the Environmental Impact Assessment (EIA) for a given project /activity of development	CO1 CO3
LSO 4.1 Predict of possible factors causing effects of climate change LSO 4.2 Effect of Ice melting on sea water	4.	Assessment of the impact of climate change on local environment	CO1 CO4
LSO 5.1 Elaborate the uses of sustainable building materials, the considering 3R LSO 5.2 Trace of Carbon foot print due to construction of a small building	5.	Demonstration of sustainable building materials in lab/workshop	CO2 CO5
LSO 6.1 Set up sample recycling bins in the laboratory LSO 6.2 Appreciate the importance of recycling and environmental benefits LSO 6.3 Explain the importance of 3 R	6.	Demonstration of the recycling process for the different materials such as paper, plastic etc. for waste management	CO3
LSO 7.1 Explain the process of composting LSO 7.2 disseminate the use of composting process to near and dear for soil health and fertility for generating organic food	7	Setting up composting bins in the laboratory to demonstrate the process of composting organic waste	CO3
LSO 8.1 Calculate own water footprint for daily activities LSO 8.2 Explain the importance of reducing water consumption and conserve water resources.	8	Calculation of personal water footprint for daily water usage for activities like bathing, cooking and laundry.	CO3
LSO 9.1 Explore the alternative / renewable sources of energy in day to day life	9.	Develop bio mass energy in the laboratory	CO3 CO4
LSO 10.1 Explore the alternative / renewable sources of energy in day to day life	10.	Develop solar model in the laboratory	CO3
LSO 11.1 Explore the alternative / renewable sources of energy in day to day life	11.	Develop wind turbine model in the laboratory	CO4

L) Suggested Term Work and Self Learning: S2400006

Some sample suggested assignments, micro project and other activities are mentioned here for reference.

a. Assignments: Questions/Problems- Real life problem /Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

1. Conduct a waste audit in your polytechnic. Categorize waste into different types such as plastic, paper, organic. Quantify the amount of each waste.

b. Micro Projects:

- Conduct of EIA of a project/activity such as construction of roads in the local area. Prepare a report on:
 - (a) Environmental issues in your city
 - (b) SDGs and environment related acts/laws applicable in your state and in India.
 - (c) Current-status & future-prospects of Wind Energy
 - (d) New energy sources
- Prepare a model of rain water harvesting system to demonstrate how rainwater can be collected and stored for various purposes such as irrigation and toilet flushing.
- Students may be asked in group to set up a small solar panel to compare the energy output under different lighting condition and angles to understand the concept of solar energy and its potential applications.

c. Other Activities:

1. Seminar Topics:

- Climate change issue and problems
- Sustainable development- Global practices
- Factor affecting sustainability in India

2. Visits:

Visit Pollution control Board of your city. Prepare report of visit with special comments of initiatives taken for protecting environment and ensuring sustainable development of the city.

Organize a field trip to a nearby park for the students. Students can be observed different species of the plants, animals and insects. They may be asked to prepare report on importance of biodiversity conservation.

3. Self-Learning Topics:

- Sustainable Development Goals
- Climate change.
- Pollution issues
- Laws and legislation of environmental protection

- M) Suggested Course Evaluation Matrix:** The course teacher has to decide and use appropriate assessment strategy and its weightage in theory, laboratory and Term Work for ensuring CO attainment. The response/performance of each student in each of these designed activities is to be used to calculate CO attainment.

COs	Course Evaluation Matrix						
	Theory Assessment (TA)**		Term Work Assessment (TWA)			Lab Assessment (LA)#	
	Progressive Theory Assessment (PTA) Class/Mid Sem Test	End Theory Assessment (ETA)	Term Work & Self Learning Assessment			Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)
			Assignments	Micro Projects	Other Activities*		
CO-1	20%	-	15%	-	-	20%	20%
CO-2	10%	-	10%	25%	-	10%	20%
CO-3	15%	-	15%	25%	50%	15%	20%
CO-4	15%	-	30%	50%	50%	15%	20%
CO-5	40%	-	30%	-	-	40%	20%
Total Marks	15	-	04	04	02	10	15
			10				

Legend:

*: Other Activities include self- learning, seminar, visits, surveys, product development, software development etc.

**: Mentioned under point- (N)

#: Mentioned under point-(O)

Note:

- The percentages given are approximate.
- In case of Micro Projects and End Laboratory Assessment (ELA), the achieved marks will be equally divided in all those COs mapped with total experiments.
- For CO attainment calculation indirect assessment tools like course exit survey need to be used which comprises of questions related to achievement of each COs.

- N) Suggested Specification Table for End Semester Theory Assessment: (Not Applicable)**

- O) Suggested Assessment Table for Laboratory (Practical):**

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
1.	Determine the Air and water pollutants harming local environment	CO1	30	60	10
2.	Determine the water pollutants harming local environment	CO1	40	50	10
3.	Carry out the Assessment of Environmental Impact (EIA) for a given project /activity of development	CO1 CO3	30	60	10
4.	Assess the impact of climate change on local environment	CO1 CO4	30	60	10
5.	Demonstrate sustainable building materials in lab/workshop	CO2 CO5	30	60	10
6.	Demonstrate the recycling process for the different materials such as paper, plastic etc. for waste management	CO3	50	40	10
7.	Setting up composting bins in the laboratory to demonstrate the process of composting organic waste	CO3	50	40	10
8.	Calculation of personal water footprint for daily water usage for activities like bathing, cooking and laundry.	CO3	50	40	10

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
9.	Develop bio mass energy in the laboratory	CO3 CO4	30	60	10
10.	Develop solar model in the laboratory	CO3	30	60	10
11.	Develop Wind turbine model in the laboratory	CO4	40	50	10

Legend:

PRA*: Process Assessment

PDA**: Product Assessment

Note: This table can be used for both end semester as well as progressive assessment of practical. Rubrics need to be prepared by the course teacher for each experiment/practical to assess the student performance.

P) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately selected, as per the requirement of the content/outcome. Some of them are Improved Lecture, Tutorial, Case Method, Group Discussion, Industrial visits, Industrial Training, Field Trips, Portfolio Based, Learning, Role Play, Live Demonstrations in Classrooms, Lab, Field Information and Communications Technology (ICT)Based Teaching Learning, Blended or flipped mode, Brainstorming, Expert Session, Video Clippings, Use of Open Educational Resources (OER), MOOCs etc.

Q) List of Major Laboratory Equipment, Tools and Software:

S. No.	Name of Equipment, Tools and Software	Broad Specifications	Relevant Experiment/Practical Number
1.	Air analyzer	Air Quality Meter Product Type: Measuring Instrument Analysis Time: 2 sec to 8-hour 59 min. 59 sec Automation Grade: Automatic	1
2.	Water Analyzer	Multi-Parameter Water Testing Meter Digital LCD Multi-Function Water Quality Monitor PH/EC/TDS/Salt/S. G/CF/ORP	2
3.	Sustainable Building Materials	As per availability in the market	2,5
4.	Solar energy Panel – KT	Solar Panel Kit 5 LEDs, 2 ON/Off Switch, Wire, 2 Crocodile Clip	7
5.	Bio mass/energy installation -kit	The Bio-energy Science Kit is a great way to find out how a direct ethanol fuel cell works.	6
6.	Wind power energy -Kit	4M wind turbine kit, to demonstrate power of wind and convert it into electricity by building your own turbine.	8
7.	Ice melting demo kit	Simple bowls of different sizes	--

R) Suggested Learning Resources:**(a) Books:**

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Ecology and Control of the Natural Environment	Izrael, Y.A.	Kluwer Academic Publisher eBook ISBN: 978-94-011-3390-6
2.	Renewable Energy Sources and Emerging Technologies	Kothari, D.P. Singal, K.C., Ranjan, Rakesh	PHI Learning, New Delhi, 2009 ISBN-13 - 978-8120344709
3.	Green Technologies and Environmental Sustainability	Singh, Ritu, Kumar, Sanjeev	Springer International Publishing, 2017 eBook ISBN 978-3-319-50654-8
4.	Coping with Natural Hazards: Indian Context	K. S. Valadia	Orient Longman ISBN-10: 8125027351 ISBN-13: 978-8125027355
5.	Introduction to Engineering and Environment	Edward S. Rubin	Mc Graw Hill Publications ISBN-10: 0071181857 ISBN-13: 978-0071181853
6.	Environmental Science	Subrat Roy	Khanna Book Publishing Co. (P) Ltd. ISBN-978: 93-91505-65-3

(b) Online Educational Resources:

1. http://www1.eere.energy.gov/wind/wind_animation.html
2. http://www.nrel.gov/learning/re_solar.html
3. http://www.nrel.gov/learning/re_biomass.html
4. <http://www.mnre.gov.in/schemes/grid-connected/biomass-powercogen/>
5. <http://www.epa.gov/climatestudents/>
6. <http://www.climatecentral.org>
7. <http://www.envis.nic.in/>
8. <https://www.overshootday.org/>
9. <http://www.footprintcalculator.org/>
10. <https://www.carbonfootprint.com/calculator.aspx>

Note: Teachers are requested to check the creative commons license status/ financial implications of the suggested, online educational resources before use by the students.

(c) Others:

1. www.nptel.iitm.ac.in
2. www.khanacademy

- A) **Course Code** : 2451206 (P2451206/S2451206)
- B) **Course Title** : Draping
- C) **Pre-requisite Course(s)** :
- D) **Rationale** :

In today's world Draping techniques evolves in fashion industry a way to create new patterns. Draping is a quick and easy method to transform the style into outfit. This course is designed to develop fundamental skills of draping techniques that directly develop any pattern with the help of dress form and get the output along with smart fit, where it is difficult to develop by flat drafting method.

- E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following course outcomes by the learners. For this, the learners are expected to perform various activities related to three learning domains (Cognitive, Psychomotor and Affective) in classroom/ laboratory/ workshop/ field/ industry.

After completion of the course, the students will be able to-

CO-1 Apply the procedures of Taping the dress form.

CO-2 Drape the basic bodice block with darts, flanges, necklines, cowl and twist variations.

CO-3 Create skirt block, slacks, halter bustier, sleeves and collars with draping techniques.

CO-4 Develop a keen sense of proportion and placement of style lines to make patterns from different inspirations

CO-5 Apply creativity to Develop innovative patterns.

- F) **Suggested Course Articulation Matrix (CAM):**

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
CO-1	1	1	1	2	2	-	2		
CO-2	1	1	1	2	2	1	1		
CO-3	1	1	1	2	2	1	2		
CO-4	1	2	1	2	2	1	1		
CO-5	1	2	1	2	2	1	1		

Legend: High (3), Medium (2), Low (1) and No mapping (-)

* PSOs will be developed by respective programme coordinator at institute level. As per latest NBA guidelines, formulating PSOs is optional.

G) Teaching & Learning Scheme:

Course Code	Course Title	Scheme of Study (Hours/Week)					
		Classroom Instruction (CI)		Lab Instruction (LI)	Notional Hours (TW+ SL)	Total Hours (CI+LI+TW+SL)	Total Credits (C)
		L	T				
2451206	Draping	-	-	02	04	06	03

Legend:

CI: Classroom Instruction (Includes different instructional/implementation strategies i.e. Lecture (L), Tutorial (T), Case method, Demonstrations, Video demonstration, Problem based learning etc. to deliver theoretical concepts)

LI: Laboratory Instruction (Includes experiments/practical performances /problem-based experiences in laboratory, workshop, field or other locations using different instructional/Implementation strategies)

Notional Hours: Hours of engagement by learners, other than the contact hours for ensuring learning.

TW: Term Work (includes assignments, seminars, micro projects, industrial visits, any other student activities etc.)

SL: Self Learning, MOOCs, spoken tutorials, online educational resources etc.

C: Credits = (1 x CI hours) + (0.5 x LI hours) + (0.5 x Notional hours)

Note: TW and SL have to be planned by the teacher and performed by the learner under the continuous guidance and feedback of teacher to ensure outcome of learning.

H) Assessment Scheme:

Course Code	Course Title	Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
		Theory Assessment (TA)		Term Work & Self-Learning Assessment (TWA)		Lab Assessment(LA)		
		Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Internal	External	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
2451206	Draping	--	--	20	30	20	30	100

Legend

PTA: Progressive Theory Assessment in classroom (includes class test, mid-term test and quiz using online/offline modes)

PLA: Progressive Laboratory Assessment (includes process and product assessment using rating Scales and rubrics)

TWA: Term work & Self Learning Assessment (Includes assessment related to student performance in assignments, seminars, micro projects, industrial visits, self-learning, any other student activities etc.)

Note:

- ETA & ELA are to be carried out at the end of the term/ semester.
- Term Work is to be done by the students under the guidance of internal faculty but its assessment will be done **internally (40%)** as well as **externally (60%)**. Assessment related to planning and execution of Term Work activities like assignment, micro project, seminar and self-learning is to be done by internal faculty (Internal Assessment) whereas assessment of output/product/ presentation related to these activities will be carried out by external faculty/expert (External Assessment). However, criteria of internal as well as external assessment may vary as per the requirement of respective course. For valid and reliable assessment, the internal faculty should prepare checklist & rubrics for these activities.

I) Course Curriculum Detailing: This course curriculum detailing depicts learning outcomes at course level and session level and their attainment by the students through Classroom Instruction (CI), Laboratory Instruction (LI), Term Work (TW) and Self Learning (SL). Students are expected to demonstrate the attainment of Theory Session Outcomes (TSOs) and Lab Session Outcomes (LSOs) leading to attainment of Course Outcomes (COs) upon the completion of the course. While curriculum detailing, NEP 2020 related reforms like Green skills, Sustainability, Multidisciplinary aspects, Society connect, Indian Knowledge System (IKS) and others must be integrated appropriately.

J) Theory Session Outcomes (TSOs) and Units: (Not Applicable)

K) Suggested Laboratory (Practical) Session Outcomes (LSOs) and List of Practical: P2451206

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
<i>LSO 1.1.</i> Use relevant tools for draping. <i>LSO 1.2.</i> Prepare the Dress form for taping.	1.	Prepare the Dress Form and Procedure of Taping • Draping tools-Dress form tool and its terms, size chart, truing, muslin marking, grain, pinning. • Prepare the dress form by using basic and innovative taping.	CO1
<i>LSO 2.1.</i> Prepare the front and back bodice block pattern with various dart series.	2.	Draping of Bodice Blocks and Darts • Front Bodice with under arm Dart • Back Bodice with Neckline Dart. • Dart manipulation-Waist line Dart, Dart at waistline and centre front. • French Dart – Double French Dart.	CO2
<i>LSO 3.1.</i> Perform Drape and Truing of a pattern for various necklines.	3.	Draping of Flanges and Neckline Flange Dart -Neckline Dart, Neckline variations – Front and Back Armhole variations. Typical sleeveless – Squared Cutaway	CO2
<i>LSO 4.1.</i> Perform Drape and truing of princess line and waistline variation patterns on bodice. <i>LSO 4.2.</i> Perform Draping and truing cowl pattern on bodice.	4.	Draping of Bodice Blocks with Cowls • Waist line variation- lowered, Empire-Shortened -Scalloped -Pointed. • The Princess Bodice • Cowls front– Under arm cowl -Wrapped neckline cowl.	CO2, CO5
<i>LSO 5.1.</i> Perform Drape, truing twists variation patterns on bodice or tops	5.	Draping of Twists on Bodices • Twists-Butterfly Twist • Neck yoke twist • Bust twist.	CO2, CO5
<i>LSO 6.1.</i> Perform Draping, Truing and balancing of any two patterns of skirt.	6.	Draping of Skirts • Drape one piece basic skirt • Gored skirt, • Flared skirt, • Gathers in the flared skirt, • Pleated skirt variations - Side pleated skirt, Box pleated skirt, Kick pleated and inverted pleated skirt.	CO3, CO5

Practical/Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment/Practical Titles	Relevant COs Number(s)
<i>LSO 7.1.</i> Prepare a halter or strapless pattern top with Flounce and ruffle variation.	7.	Draping of Halter or Strapless Bustier Drape halter or strapless Bustier pattern with Flounces – Circular flounce, Shirred Flounce, Ruffles, Variable Ruffle finishes peplums.	CO3, CO5
<i>LSO 8.1.</i> Choose relevant knit material for draping and truing any one pattern of slack	8.	Draping of Slacks with Knit Fabric • Draping of basic straight slacks • Fitted slacks • Tapered slacks	CO3, CO5
<i>LSO 9.1.</i> Perform Draping, truing and balancing any one pattern of sleeve.	9.	Draping of Sleeves • Drape basic sleeve • Puff sleeve • Cape sleeve	CO3, CO5
<i>LSO 10.1.</i> Draping, truing and balancing any one pattern of stand collar and any one from polo/shawl/shirt collar	10.	Draping of Collars • polo • shawl • shirt collar • stand collar	CO3, CO5
<i>LSO 11.1.</i> Design, Drape, truing and balance any one pattern for production through photo, picture or image.	11.	Development of Design shown in sample image through draping.	CO4, CO5
<i>LSO12.1</i> Design and drape theme based pattern from movies.	12	Creative Draping. Theme based pattern inspired from movies (any on garment)	CO5

L) Suggested Term Work and Self Learning: S2451206

Some sample suggested assignments, micro project and other activities are mentioned here for reference.

a. Assignments:

1. Collect information about the elements used for draping and present it in creative manner.
2. Prepare a swatch board of fabrics suitable for draping. State the name of each fabric and specify its colour.
3. Collection of pictures of various draped patterns for women, men and kids

b. Micro Projects:

1. Prepare a display board for ancient draping techniques used around the world in epic era.
2. Prepare a portfolio of draped costume (Man Woman kid any one).
3. Drape a creative garment to a sample Doll
4. Drape with ecofriendly or sustainable textile material like banana fabric, bamboo fabric etc.

c. Other Activities:

1. Seminar Topics:

- Prepare a seminar presentation on any one national designer's work for draping.
- Prepare a seminar presentation on any one international designer's work for draping.

- Draping elements used by Rome and Greek.
(Note: Here teacher can suggest two three options of designers to each group of students)

2. Visits and other:

- Conduct a market survey visit to nearby boutiques, fashion studio and malls.
- Prepare an album of any five new trends for draping.
- Prepare report of visit with special comments of draping technique used, material used, single production/batch production/mass production and cost of each.

3. Self-Learning Topics:

- Prepare a sketch board or illustration board for draped costumes. (minimum 3 illustrations)
- Prepare a comparative in tabular form for drapability of woven, knit and fluid or synthetic and natural fiber.
- Prepare main points of video after watching few videos available to on you tube to know various draping techniques. Mention the link of video in write up. (Watch Nick Verreos videos for draping techniques
<https://in.video.search.yahoo.com/search/video?fr=mcafee&ei=UTF-8&p=draping+of+cowl+vedio&type=E211IN826G0#id=1&vid=6bd6605a0edd8dd580aeee97c60913aa&action=click>)

4. Competitions/ Exhibitions

- Arrange an in- house fashion show/display/competition for draping:
 - Draping of Bodice Blocks with cowls
 - Draping of Bodice Blocks and darts.

M) Suggested Course Evaluation Matrix: The course teacher has to decide and use appropriate assessment strategy and its weightage in theory, laboratory and Term Work for ensuring CO attainment. The response/performance of each student in each of these designed activities is to be used to calculate CO attainment.

COs	Course Evaluation Matrix						
	Theory Assessment (TA)**		Term Work Assessment (TWA)			Lab Assessment (LA)#	
	Progressive Theory Assessment (PTA) Class/Mid Sem Test	End Theory Assessment (ETA)	Term Work & Self Learning Assessment			Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)
			Assignments	Micro Projects	Other Activities*		
CO-1	-	-	15%	-	10%	20%	20%
CO-2	-	-	-	-	20%	10%	20%
CO-3	-	-	15%	35%	20%	15%	20%
CO-4	-	-	35%	35%	25%	15%	20%
CO-5	-	-	35%	30%	25%	40%	20%
Total Marks	-	-	20	20	10	20	30
			50				

Legend:

- *: Other Activities include self- learning, seminar, visits, surveys, product development, software development etc.
- ** : Mentioned under point- (N)
- # : Mentioned under point-(O)

Note:

- The percentages given are approximate.
- In case of Micro Projects and End Laboratory Assessment (ELA), the achieved marks will be equally divided in all those COs mapped with total experiments.
- For CO attainment calculation indirect assessment tools like course exit survey need to be used which comprises of questions related to achievement of each COs.

N) Suggested Specification Table for End Semester Theory Assessment: (Not Applicable)**O) Suggested Assessment Table for Laboratory (Practical):**

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
1.	Prepare the Dress Form - Draping tools-Dress form tool and its terms, size chart, truing, muslin marking, grain, pinning. - Prepare the dress form by basic and innovative taping.	CO1	40	50	10
2.	Draping of Bodice Blocks and Darts. - Front Bodice with under arm Dart - Back Bodice with Neckline Dart. - Dart manipulation-Waist line Dart, Dart at waistline and centre front. - French Dart – Double French Dart.	CO2	40	50	10
3.	Draping of Flanges and Neckline. Flange Dart -Neckline Dart, Neckline variations – Front and Back Armhole variations. Typical sleeveless – Squared Cutaway	CO2, CO5	40	50	10
4.	Draping of Bodice Blocks with Cowl - Waist line variation- lowered, Empire-Shortened - Scalloped -Pointed. - The Princes Bodice Cowls front– Under arm cowl -Wrapped neckline cowl.	CO2, CO5	40	50	10
5.	Draping of Twists on Bodices - Twists-Butterfly Twist - Neck yoke twist - Bust twist.	CO2, CO5	40	50	10
6.	Draping of Skirts - Drape one piece basic skirt - Gored skirt, - Flared skirt, - Gathers in the flared skirt, Pleated skirt variations - Side pleated skirt, Box pleated skirt, Kick pleated and inverted pleated skirt.	CO3, CO5	40	50	10
7.	Draping of Halter or Strapless Bodices Drape halter or strapless bodices pattern with Flounces – Circular flounce, Shirred Flounce, Ruffles, Variable Ruffle finishes peplums.	CO3, CO5	40	50	10
8.	Draping of Slacks with Knit Fabric - Draping of basic straight slacks - Fitted slacks Tapered slacks	CO3, CO5	40	50	10
9.	Draping of Sleeves - Drape basic sleeve - Puff sleeve Cape sleeve	CO3, CO5	40	50	10

S. No.	Laboratory Practical Titles	Relevant COs Number(s)	PLA/ELA		
			Performance		Viva-Voce (%)
			PRA* (%)	PDA** (%)	
10.	Draping of Collars • polo • shawl • shirt collar • stand collar	CO3, CO5	40	50	10
11.	Development of design shown in picture or image through draping.	CO4, CO5	40	50	10
12.	Creative Draping Theme based pattern-one evening gown	CO5	40	50	10

Legend:

PRA*: Process Assessment

PDA**: Product Assessment

Note: This table can be used for both end semester as well as progressive assessment of practical. Rubrics need to be prepared by the course teacher for each experiment/practical to assess the student performance.

P) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately selected, as per the requirement of the content/outcome. Some of them are Improved Lecture, Tutorial, Case Method, Group Discussion, Industrial visits, Industrial Training, Field Trips, Portfolio Based, Learning, Role Play, Live Demonstrations in Classrooms, Lab, Field Information and Communications Technology (ICT)Based Teaching Learning, Blended or flipped mode, Brainstorming, Expert Session, Video Clippings, Use of Open Educational Resources (OER), MOOCs etc.

Q) List of Major Laboratory Equipment, Tools and Software:

S. No.	Name of Equipment, Tools and Software	Broad Specifications	Relevant Experiment/Practical Number
1.	Dress form	Dress form covered by foam and fabric helpful for pinning. Size 8,10,12	For all Practicals
2.	StickyTape	45 meter StickyTape	For all Practicals
3.	Muslin fabric	Use Moderate drape type of muslin fabric	For all Practicals
4.	Synthetic,knit fabric, taffeta,cotton fabric and sustainable fabric	Use Fluid, moderate, Full body drape types of fabric according to pattern	8, 10, 11 and 12
5.	L Square and scale	Transparent and Plastic material based scale	For all Practicals
6.	Straight Pins, Silk pins and Pin Cushion	Pointed and Steel pins	For all Practicals
7.	Pencils	Colorfull dress maker pencil	For all Practicals
8.	Fabric cutting Scissors	10" and 12" fabric cutting scissor	For all Practicals
9.	Single needle lock stitch machine	Single needle lock stitch machine (Domestic purpose)	4,5,6,7,8,9,10,11 &12

R) Suggested Learning Resources:**(a) Books:**

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	The Art of Fashion Draping 4th Edition	Author –Connie Amaden	Publisher -Fairchild Books ISBN-13: 978-1609012274 ISBN-10: 1609012275
2.	Draping - Art and Craftsmanship in Fashion Design	Author -Annette Duburg E.	Publisher -Artez Press ISBN- 9789491444210
3.	Fashion Moulage Technique: A Step by Step Draping Course 1st Edition	Author –Danlio Attardi	Publisher -Paperback ISBN-13: 978-8417412128 ISBN-10: 8417412123
4.	Draping: The Complete Course: Second Edition	Author –Karolyn Kiisel	Publisher: Laurence King ISBN-10: 1786272318 ISBN-13: 978-1786272317
5	The Art of Fashion Draping	Author –Connie Amaden	Publisher :Fairchild publication Paperback ISBN- 9781501330292
6	Draping for Fashion Design	HildeeJaffe,NurieRelis	PearsonPublication- ISBN-978-81-317-2696-9

(b) Online Educational Resources:

1. <https://www.youtube.com/watch?v=-Z2hvYFkUf0>
2. <https://in.pinterest.com>>
3. <https://www.designersnexus.com>
4. <https://www.fibre2fabric.com>
5. <https://www.universityoffashion.com>
6. <https://www.craftsy.com>
7. <https://www.style2designer.com>
8. T R cutting school by shingosato-online draping classes by shingosato

Note: Teachers are requested to check the creative commons license status/ financial implications of the suggested, online educational resources before use by the students.

(c) Others: -

- A) **Course Code** : 2400207 (T2400207/ S2400207)
- B) **Course Title** : Indian Constitution (Common for all Programmes)
- C) **Pre- requisite Course(s)** :
- D) **Rationale** :

This course will focus on the basic structure and operative dimensions of Indian Constitution. It will explore various aspects of the Indian political and legal system from a historical perspective highlighting the various events that led to the making of the Indian Constitution. The Constitution of India is the supreme law of India. The document lays down the framework demarcating the fundamental political code, structure, procedures, powers, and sets out fundamental rights, directive principles, and the duties of citizens. The course on constitution of India highlights key features of Indian Constitution that makes the students a responsible citizen. In this online course, we shall make an effort to understand the history of our constitution, the Constituent Assembly, the drafting of the constitution, the preamble of the constitution that defines the destination that we want to reach through our constitution, the fundamental right constitution guarantees through the great rights revolution, the relationship between fundamental rights and fundamental duties, the futurist goals of the constitution as incorporated in directive principles and the relationship between fundamental rights and directive principles.

- E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following course out comes by the learners. For this, the learners are expected to perform various activities related to three learning domains (Cognitive, Psychomotor and Affective) in classroom/laboratory/workshop/field/ industry.

After completion of the course, the students will be able to-

- CO-1** Enumerate salient features and characteristics of the constitution of India.
- CO-2** Follow fundamental rights and duties as responsible citizen and engineer of the country.
- CO-3** Analyze major constitutional amendments in the constitution.

- F) **Suggested Course Articulation Matrix (CAM):**

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
CO-1	1	-	-	-	2	-	-		
CO-2	1	-	-	-	2	-	-		
CO-3	1	2	-	-	2	-	1		

Legend: High (3), Medium (2), Low (1) and No mapping (-)

* PSOs will be developed by respective programme coordinator at institute level. As per latest NBA guidelines, formulating PSOs is optional.

G) Teaching & Learning Scheme:

Course Code	Course Title	Scheme of Study (Hours/Week)					
		Classroom Instruction (CI)		Lab Instruction (LI)	Notional Hours (TW+ SL)	Total Hours (CI+LI+TW+SL)	Total Credits (C)
		L	T				
2400207	Indian Constitution	01	-	-	-	01	01

Legend:

CI: Classroom Instruction (Includes different instructional/implementation strategies i.e. Lecture(L), Tutorial(T), Case method, Demonstrations, Video demonstration, Problem based learning etc. to deliver theoretical concepts)

LI: Laboratory Instruction (Includes experiments/practical performances /problem-based experiences in laboratory, workshop, field or other locations using different instructional/Implementation strategies)

Notional Hours: Hours of engagement by learners, other than the contact hours for ensuring learning.

TW: Term Work (includes assignments, seminars, micro projects, industrial visits, any other student activities etc.)

SL: Self Learning, MOOCs, spoken tutorials, online educational resources etc.

C: Credits= (1 x CI hours) + (0.5 x LI hours) + (0.5 x Notional hours)

Note: TW and SL have to be planned by the teacher and performed by the learner under the continuous guidance and feedback of teacher to ensure outcome of learning.

H) Assessment Scheme:

Course Code	Course Title	Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
		Theory Assessment (TA)		Term Work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
		Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Internal	External	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
2400207	Indian Constitution	25	-	25	-	-	-	50

Legend:

PTA: Progressive Theory Assessment in classroom (includes class test, mid-term test and quiz using online/offline modes)

PLA: Progressive Laboratory Assessment (includes process and product assessment using rating Scales and rubrics)

TWA: Term work & Self Learning Assessment (Includes assessment related to student performance in assignments, seminars, micro projects, industrial visits, self-learning, any other student activities etc.)

Note:

- ETA & ELA are to be carried out at the end of the term/ semester.
- Term Work is to be done by the students under the guidance of internal faculty but its assessment will be done **internally (40%)** as well as **externally (60%)**. Assessment related to planning and execution of Term Work activities like assignment, micro project, seminar and self-learning is to be done by internal faculty (Internal Assessment) whereas assessment of output/product/presentation related to these activities will be carried out by external faculty/expert (External Assessment). However, criteria of internal as well as external assessment may vary as per the requirement of respective course. For valid and reliable assessment, the internal faculty should prepare checklist & rubrics for these activities.

I) Course Curriculum Detailing: This course curriculum detailing depicts learning outcomes at course level and session level and their attainment by the students through Classroom Instruction (CI), Laboratory Instruction (LI), Term Work (TW) and Self Learning (SL). Students are expected to demonstrate the attainment of Theory Session Outcomes (TSOs) and Lab Session Outcomes (LSOs) leading to attainment of Course Outcomes (COs) upon the completion of the course. While curriculum detailing, NEP 2020 related reforms like Green skills, Sustainability, Multidisciplinary aspects, Society connect, Indian Knowledge System (IKS) and others must be integrated appropriately.

J) Theory Session Outcomes (TSOs) and Units: T2400207

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
TSO 1a. Explain the meaning of preamble of the constitution. TSO 1b. List the salient features of constitution. TSO 1c. List the characteristics of constitution.	Unit-1.0 Constitution and Preamble 1.1 Meaning of the constitution of India. 1.2 Historical perspective of the Constitution of India. 1.3 Salient features and characteristics of the Constitution of India. 1.4 Preamble to the Constitution of India.	CO1
TSO 2a. Enlist the fundamental rights. TSO 2b. Identify fundamental duties in general and in particular with engineering field. TSO 2c. identify situations where directive principles prevail over fundamental rights.	Unit-2.0 Fundamental Rights and Directive Principles 2.1 Fundamental Rights under Part-III. 2.2 Fundamental duties and their significance. 2.3 Relevance of Directive Principles of State Policy under part-IV.	CO2
TSO 3a. Enlist the constitutional amendments. TSO 3b. Analyze the purposes of various amendments.	Unit-3.0 Governance and Amendments 3.1 Amendment of the Constitutional Powers and Procedure 3.2 Major Constitutional Amendment procedure - 42nd, 44th, 74th, 76th, 86th and 91st	CO3

Note: One major TSO may require more than one Theory session/Period.

K) Suggested Laboratory (Practical) Session Outcomes (LSOs) and List of Practical: (Not Applicable)

L) Suggested Term Work and Self Learning: S2400207 Some sample suggested assignments, micro project and other activities are mentioned here for reference.

a. Assignments: Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

b. Micro Projects:

- Role of Media in Spreading Awareness regarding Fundamental Rights
- Analysis of Situations where directive principle of State policy has prevailed over Fundamental rights
- Analyze 42nd and 97th Amendment of Indian Constitution

c. Other Activities:

- Seminar Topics:
 - Democracy and Political Participation in India
 - Situations where directive principles prevail over fundamental rights.
- Visits:
 - Arrange Mock Parliament.
- Design games and simulation on emergencies declared in last thirty years.

4. Group discussions on current print articles.
 - Adoption of Article 365 in India.
 - Need of amendments in the constitution.
5. Prepare collage/posters on current constitutional issues.
 - Emergencies declared in India
 - Seven fundamental rights
6. Cases: Suggestive cases for usage in teaching:

Case	Relevance
A.K. Gopalan Case (1950)	SC contended that there was no violation of Fundamental Rights enshrined in Articles 13, 19, 21 and 22 under the provisions of the Preventive Detention Act, if the detention was as per the procedure established by law. Here, the SC took a narrow view of Article 21.
Shankari Prasad Case (1951)	This case dealt with the amendability of Fundamental Rights (the First Amendment's validity was challenged). The SC contended that the Parliament's power to amend under Article 368 also includes the power to amend the Fundamental Rights guaranteed in Part III of the Constitution.
Minerva Mills case (1980)	This case again strengthens the Basic Structure doctrine. The judgement struck down 2 changes made to the Constitution by the 42nd Amendment Act 1976, declaring them to violate the basic structure. The judgement makes it clear that the Constitution, and not the Parliament is supreme.
Maneka Gandhi case (1978)	A main issue in this case was whether the right to go abroad is a part of the Right to Personal Liberty under Article 21. The SC held that it is included in the Right to Personal Liberty. The SC also ruled that the mere existence of an enabling law was not enough to restrain personal liberty. Such a law must also be "just, fair and reasonable."

7. Self-Learning Topics:

- Parts of the constitution and a brief discussion of each part.
- Right to education.
- Right to equality.

M) Suggested Course Evaluation Matrix: The course teacher has to decide and use appropriate assessment strategy and its weightage in theory, laboratory and Term Work for ensuring CO attainment. The response/performance of each student in each of these designed activities is to be used to calculate CO attainment.

COs	Course Evaluation Matrix						
	Theory Assessment (TA)**		Term Work Assessment (TWA)			Lab Assessment (LA)#	
	Progressive Theory Assessment (PTA) Class/Mid Sem Test	End Theory Assessment (ETA)	Term Work & Self Learning Assessment			Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)
			Assignments	Micro Projects	Other Activities*		
CO-1	30%	-	30%	-	-	-	-
CO-2	40%	-	40%	50%	50%	-	-
CO-3	30%	-	30%	50%	50%	-	-
Total Marks	25	-	5	10	10	-	-
			25				

Legend:

*: Other Activities include self- learning, seminar, visits, surveys, product development, software development etc.

**: Mentioned under point- (N)

#: Mentioned under point-(O)

Note:

- The percentages given are approximate.
- In case of Micro Projects and End Laboratory Assessment (ELA), the achieved marks will be equally divided in all those COs mapped with total experiments.
- For CO attainment calculation indirect assessment tools like course exit survey need to be used which comprises of questions related to achievement of each COs.

N) Suggested Specification Table for End Semester Theory Assessment: (Not Applicable)

O) Suggested Assessment Table for Laboratory (Practical): (Not Applicable)

P) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately selected, as per the requirement of the content/outcome. Some of them are Improved Lecture, Tutorial, Case Method, Group Discussion, Industrial visits, Industrial Training, Field Trips, Portfolio Based, Learning, Role Play, Live Demonstrations in Classrooms, Lab, Field Information and Communications Technology (ICT) Based Teaching Learning, Blended or flipped mode, Brainstorming, Expert Session, Video Clippings, Use of Open Educational Resources (OER), MOOCs etc.

Q) List of Major Laboratory Equipment, Tools and Software: (Not Applicable)

R) Suggested Learning Resources:

(a) Books:

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	The Constitution of India	P.M. Bakshi	Universal Law Publishing, New Delhi 15th edition, 2018, ISBN: 9386515105
2.	Introduction to Indian Constitution	D.D. Basu	Lexis Nexis Publisher, New Delhi, 2015, ISBN:935143446X
3.	Introduction to Constitution of India	B. K. Sharma	PHI, New Delhi, 6th edition, 2011, ISBN:8120344197
4.	The Constitution of India	B.L. Fadia	Sahitya Bhawan, Agra, 2017, ISBN:8193413768
5.	The Constitutional Law of India	Durga Das Basu	LexisNexis Butterworths Wadhwa, Nagpur 978-81-8038-426-4

(b) Online Educational Resources:

1. <https://www.coursera.org/learn/principles-of-management>
2. <http://www.legislative.gov.in/constitution-of-india>
3. https://en.wikipedia.org/wiki/Constitution_of_India
4. <https://www.india.gov.in/my-government/constitution-india>
5. <https://eci.gov.in/about/about-eci/the-setup-r1/>
6. <https://www.toppr.com/guides/civics/the-indian-constitution/the-constitution-of-india/>
7. <https://main.sci.gov.in/constitution>
8. <https://nios.ac.in/media/documents/srsec317newE/317EL8.pdf>
9. <https://legalaffairs.gov.in/sites/default/files/chapter%203.pdf>
10. https://www.concourt.am/armenian/legal_resources/world_constitutions/constit/india/india-e.htm
11. <https://constitutionnet.org/vl/item/basic-structure-indian-constitution>

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(c) Others: -
