



**DIPLOMA IN TEXTILE ENGINEERING SYLLABUS
PROBIDHAN-2022
5TH SEMESTER**

				Period & Credits			Marks				
SL. No	Dept. & Semester	Subject Code	Name of the Subjects	T	P	C	Theory		Practical		Total
							Cont	Final	Cont	Final	
2	5th Tex	21251	Fabric Structure & Design	2	3	3	40	60	25	25	150

This course will be conducted by: Md. Jihad Hasan

1) Learning Outcome (Theoretical/Knowledge):

- Describe different types of woven fabric
- Explain the main parts of a complete design
- Illustrate different types of drafting system
- Classify basic woven fabric
- Design different types of basic woven fabric
- Differentiate various types of basic woven fabric
- Explain the end uses of various types of basic woven fabric
- Describe basic weft knit fabrics
- Design the chain notation, cam arrangement and needle arrangement of basic weft knit structure
- Explain the end uses of basic knit structure.
- Identify different types of basic woven fabric
- Analyze different types of basic woven fabric
- Produce various types of basic woven fabric
- Determine the loom requirements for producing various types of basic woven fabric
- Identify basic weft knit fabrics
- Analyze basic weft knit fabrics
- Produce basic weft knit fabrics
- Determine the machine requirements for producing basic knit fabrics

Detailed Syllabus (Theory)

Unit	Topics with Contents	Final Marks
1	Introduction of Fabric Structure and Design 1.1 Define fabric structure 1.2 Classify fabric structure 1.3 Define fabric design 1.4 Define texture 1.5 Describe grain line of fabric 1.6 Define woven structure 1.7 Classify woven structure.	5
2	Fundamentals of woven design 2.1 Explain different parts of a complete design 2.2 Describe the methods of fabric representation 2.3 Mention the conditions of repeat unit 2.4 Describe the identification process of warp and weft yarn 2.5 Define drafting 2.6 Classify drafting 2.7 Explain the methods of indicating drafts 2.8 Discuss various types of drafting systems 2.9 Discuss the basic weave of woven fabric.	10
3	Plain weave 3.1 Define plain weave 3.2 Mention the features of plain weave 3.3 Classify plain cloth according to different approach 3.4 Describe the ornamentation process of plain weave 3.5 Discuss the end uses of plain weave.	5
4	Derivatives of Plain weave 4.1 Describe the derivatives of plain weave 4.2 Define rib weave 4.3 Classify rib weave 4.4 Explain different types of rib weave with graph paper 4.5 Define matt weave 4.6 Classify matt weave 4.7 Explain different types of matt weave with graph paper 4.8 Distinguish between rib and matt weave	10
5	Twill weave 5.1 Define twill weave 5.2 Mention the features of twill weave 5.3 Classify twill weave according to different points of view	4

	5.4 Define angle of twill 5.5 List the derivatives of twill weave. 5.6 Discuss the end uses of twill weave.	
6	Zigzag and Herringbone twill 6.1 Define zigzag twill 6.2 Classify zigzag twill 6.3 Explain different types of zigzag twill with graph paper 6.4 Compare between horizontal and vertical zigzag twill 6.5 Define herringbone twill 6.6 Classify herringbone twill 6.7 Explain different types of herringbone twill with graph paper 6.8 Distinguish between horizontal and vertical herringbone twill.	4
7	Diamond and Diaper design 7.1 Define diamond design 7.2 Mention the features of diamond design 7.3 Illustrate the construction principle of diamond design 7.4 Construct diamond design with drafting and lifting plan 7.5 Define diaper design 7.6 State the features of diaper design 7.7 Illustrate the construction principle of diaper design 7.8 Construct diaper design with drafting and lifting plan 7.9 Differentiate between diamond and diaper design.	4
8	Broken twill and Rearranged twill 8.1 Define broken twill 8.2 Mention the features of broken twill 8.3 Explain the construction principle of various types of broken twill 8.4 Construct broken twill with drafting and lifting plan 8.5 Define rearranged twill 8.6 Mention the features of rearranged twill 8.7 Explain the construction principle of rearranged twill 8.8 Construct rearranged twill with drafting and lifting plan.	4
9	Stepped and elongated twill 9.1 Define stepped twill 9.2 Mention the features of stepped twill 9.3 Explain the construction principle of various types of stepped twill 9.4 Construct stepped twill with drafting and lifting plan 9.5 Define elongated twill 9.6 Mention the features of elongated twill 9.7 Explain the construction principle of various types of elongated twill	4

	9.8 Construct elongated twill with drafting and lifting plan.	
10	Combined Twill 10.1 Define combined twill 3 3 10.2 Mention the features of combined twill 10.3 Explain the construction principle of warp way combined twill 10.4 Construct warp way combined twill with drafting and lifting plan. 10.5 Explain the construction principle of weft way combined twill 10.6 Construct weft way combined twill with drafting and lifting plan.	3
11	Shaded twill 11.1 Define shaded twill 11.2 Mention the features of shaded twill 11.3 Explain the construction principle of single shaded twill 11.4 Construct single shaded twill with drafting and lifting plan 11.4 Explain the construction principle of double shaded twill 11.6 Construct double shaded twill with drafting and lifting plan.	3
12	Satin and Sateen weaves 12.1 Define satin weave 12.2 Mention the features of satin weave 12.3 Mention the classification of satin weave 12.4 Define move number 12.5 Describe the selection process of move number for satin weave 12.6 Define regular and irregular satin weave 12.7 Explain the construction process of satin weave with graph paper 12.8 Explain the construction process of sateen weave with graph paper 12.9 Discuss the end uses of satin weave.	10
13	Derivatives of satin weave 13.1 Describe the derivatives of satin weave 13.2 Discuss crepe weave 13.3 Explain different methods of crepe weave production 13.4 Explain the construction principle of odd number crotch screw weave with graph paper 13.5 Explain the construction principle of single shaded satin weave with graph paper 13.6 Explain the construction principle of double shaded satin Weave with graph paper.	10

14	Basic weft knitted structure 14.1 Define knitted structure 14.2 Mention the features of knitted structure 14.3 Describe the classification of basic weft knitted structure 14.4 Draw the chain notation of basic weft knitted structure 14.5 Sketch the cam arrangement of basic weft knitted structure 5 12 14.6 Sketch the needle arrangement of basic weft knitted structure 14.7 Define GSM 14.8 Calculate GSM of basic knit fabric 14.9 Define stitch length 14.10 Explain the process of measuring stitch length.	12
15	Typical export oriented fabrics 15.1 Explain typical export oriented fabrics 15.2Mentionthe specification of Poplin, Voile, Chambray, Oxford, Canvas, Chiffon, Seer Sucker and Muslin Fabrics 15.3 Mention the specification of Denim, Gabardine, Fill-A-Fill, Ottoman And Panama Fabrics. 15.4 Mention the specification of Single jersey, Rib, Interlock, Lacoste, Pique, Waffle, Fleece fabrics.	2
	Total	90
Detailed Syllabus (Practical)		
1	Observe plain fabric 1.1 Identify the face and back of the fabric 1.2 Identify warp and weft yarn 1.3 Determine the EPI and PPI. 1.4 Analyze the structure of the fabric 1.5 Draw the design of the fabric 1.6 Identify the repeating unit 1.7 Draw the drafting and lifting plan 1.8 Determine the loom requirements for producing the fabric 1.9Maintain the record of performed experiment.	2.5
2	Observe rib fabric 2.1 Identify the face and back of the fabric 2.2 Identify warp and weft yarn 2.3 Determine the EPI and PPI. 2.4 Analyze the structure of the fabric 2.5 Draw the design of the fabric 2.6 Identify the repeating unit 2.7 Draw the drafting and lifting plan	2.5

	2.8 Determine the loom requirements for producing the fabric 2.9Maintain the record of performed experiment.	
3	Observe matt fabric 3.1 Identify the face and back of the fabric 3.2 Identify warp and weft yarn 3.3 Determine the EPI and PPI. 3.4 Analyze the structure of the fabric 3.5 Draw the design of the fabric 3.6 Identify the repeating unit 3.7 Draw the drafting and lifting plan 3.8 Determine the loom requirements for producing the fabric 3.9Maintain the record of performed experiment	2.5
4	Observe twill fabric 4.1 Identify the face and back of the fabric 4.2 Identify warp and weft yarn 4.3 Determine the EPI and PPI. 4.4 Analyze the structure of the fabric 4.5 Draw the design of the fabric 4.6 Identify the repeating unit 4.7 Draw the drafting and lifting plan 4.8 Determine the loom requirements for producing the fabric 4.9Maintain the record of performed experiment.	2.5
5	Observe zigzag and herringbone design 5.1 Identify the face and back of the fabric 5.2 Identify warp and weft yarn 5.3 Determine the EPI and PPI. 5.4 Analyze the structure of the fabric 5.5 Draw the design of the fabric 5.6 Identify the repeating unit 5.7 Draw the drafting and lifting plan 5.8 Determine the loom requirements for producing the fabric 5.9Maintain the record of performed experiment.	2.5
6	Observe broken twill 6.1 Identify the face and back of the fabric 6.2 Identify warp and weft yarn 6.3 Determine the EPI and PPI. 6.4 Analyze the structure of the fabric 6.5 Draw the design of the fabric 6.6 Identify the repeating unit 6.7 Draw the drafting and lifting plan 6.8 Determine the loom requirements for producing the fabric 6.9Maintain the record of performed experiment.	2.5

7	Observe satin and sateen fabric 7.1 Identify the face and back of the fabric 7.2 Identify warp and weft yarn 7.3 Determine the EPI and PPI. 7.4 Analyze the structure of the fabric 7.5 Draw the design of the fabric 7.6 Identify the repeating unit 7.7 Draw the drafting and lifting plan 7.8 Determine the loom requirements for producing the fabric 7.9 Maintain the record of performed experiment.	2.5
8	Observe Plain knit fabric 8.1 Identify the face and back of the fabric 8.2 Identify courses and wales 8.3 Calculate the courses and wales per unit length 8.4 Calculate the stitch length 8.5 Determine the GSM of the fabric 8.6 Analyze the design of the fabric 8.7 Draw the chain notation, cam arrangement and needle arrangement of the supplied fabric sample 8.8 Maintain the record of performed experiment.	2.5
9	Observe 1x1 Rib knit fabric 9.1 Identify the face and back of the fabric 9.2 Identify courses and wales 9.3 Calculate the courses and wales per unit length 9.4 Calculate the stitch length and 9.5 Determine the GSM of the fabric 9.6 Analyze the design of the fabric 9.7 Draw the chain notation, cam arrangement and needle arrangement of the fabric 9.8 Maintain the record of performed experiment.	2.5
10	Observe 1x1 Interlock knit fabric 10.1 Identify the face and back of the fabric 10.2 Identify courses and wales 10.3 Calculate the courses and wales per unit length 10.4 Calculate the stitch length 10.5 Determine the GSM of the fabric 10.6 Analyze the design of the fabric 10.7 Draw the chain notation, cam arrangement and needle arrangement of the fabric 10.8 Maintain the record of performed experiment.	2.5
	Total	25