

**BANGLADESH TECHNICAL EDUCATION BOARD**

**4-YEAR DIPLOMA-IN-TEXTILE ENGINEERING  
PROGRAM**

**TEXTILE TECHNOLOGY**

**SYLLABUS**

**SEVENTH SEMESTER**

**COURSE STRUCTURE**  
**TEXTILE TECHNOLOGY**

**SEVENTH SEMESTER**

			Periods & Credits			Marks				
SL No	Subject Code	Name of the Subjects	T	P	C	Theory		Practical		Total
						Cont	Final	Cont	Final	
1	1972	Advanced Short Staple Spinning	3	3	4	30	120	25	25	200
2	1973	Textile Design & Color	2	3	3	20	80	25	25	150
3	1974	Fashion and Design	2	3	3	20	80	25	25	150
4	1975	Advance Knitting & Non-Woven	2	3	3	20	80	25	25	150
5	1976	Maintenance of Textile Machinery	0	6	2	-	-	50	50	100
6	1977	Textile Calculation-II	2	0	2	20	80	-	-	100
7	7074	Production Planning & Control	3	0	3	30	120	-	-	150
8	5871	Entrepreneurship	2	0	2	20	80	-	-	100
			<b>16</b>	<b>18</b>	<b>22</b>	<b>160</b>	<b>640</b>	<b>150</b>	<b>150</b>	<b>1100</b>

<b>1972</b>	<b>ADVANCED SHORT STAPLE SPINNING</b>	<b>T</b>	<b>P</b>	<b>C</b>
		3	3	4

**AIMS:**

1. To develop advance knowledge of special type short staple spinning.
2. To enable to understand the concepts of open end spinning machinery.
3. To develop the knowledge of blended yarn.

**SHORT DESCRIPTION**

To understand the basic concepts of Blended yarn processing, Cotton blended yarn, Special type of spinning i.e warp spinning, Core spinning & Condensed yarn spinning.

**DETAIL DESCRIPTION****Theory****Short staple Spinning****1.0 Understand the Concept of modern spinning machinery from Blow room to Ring frame.**

- 1.1 State the name and function of machineries used in modern Blow room.
- 1.2 Describe the modern development of Carding machine.
- 1.3 Discuss the development of drawing frame.
- 1.4 Describe the point to development in computerize Simplex and Ring frame.

**2.0 Understand the polyester and cotton blended yarn processing.**

- 2.1 State the importance of blended yarn
- 2.2 State the properties of fibres considered for p/c blended yarn.
- 2.3 Mention the blending ratio of polyester & cotton for different count of p/c blended yarn
- 2.4 Show the flow chart of p/c blended yarn production.
- 2.5 Learn the blended test.
- 2.6 Mention the necessary changes/works to be done for p/c blended yarn production from blow room section to ring frame
- 2.7 Solve the relevant problems of p/c blended yarn production.

**3.0 Understand viscose cotton blended yarn.**

- 3.1 Mention the flow chart of viscose cotton blended yarn production.
- 3.2 Discuss the different of p/c & v/c blending process.
- 3.3 List the properties of viscose- cotton blended yarn.
- 3.4 Describe merits and demerits, uses of viscose- cotton blended yarn.

**4.0 Understand Core yarn spinning.**

- 4.1 Define core spun yarn.
- 4.2 Discuss the method of manufacturing core-spun yarn by Ring frame.
- 4.3 Mention the raw material requirements for core- spun yarn.
- 4.4 Describe the application of core-spun yarn.
- 4.5 State the properties of core yarn.

**5.0 Understand open end spinning.**

- 5.1 Define the open end spinning.
- 5.2 Mention the flow chart of open end spinning.
- 5.3 Discuss briefly the following modern spinning system.
  - a). Air Jet spinning.
  - b). Vortex spinning
  - c). Electrostatic spinning.
  - d). Friction spinning.

**6.0 Understand Rotor spinning.**

- 6.1 State Rotor spinning.
- 6.2 Discuss working principle of Rotor spinning.
- 6.3 Mention the merit & demerits of Rotor spinning.
- 6.4 Define Rotor deposit.
- 6.5 Describe the minimize of Rotor deposit.
- 6.6 Solve the relevant problems of rotor spinning.
- 6.7 Mention compare the Rotor yarn with Ring yarn.

**7.0 Understand about modern yarn product.**

- 7.1 Discuss the fancy yarn Manufacturing process.
- 7.2 Discuss the mélange yarn Manufacturing process.
- 7.3 Discuss the slub yarn production process.
- 7.4 Discuss the compact yarn production process.

**8.0 Understand spin plan**

- 8.1 State the importance of spin plan
- 8.2 Mention the factors to be considered for calculation spin plan.
- 8.3 State parameters, types of parameters and value of different parameters for different count and systems (conventional, modern)
- 8.4 Prepare spin plan for different count 2 system (conventional, modern).

**9.0 Understand process control.**

- 9.1 State the waste control of short spinning process.
- 9.2 State types of wastage produce in cotton spinning process.
- 9.3 Recycling wastage produce in cotton spinning process.

**10.0 Understand the yarn production cost.**

- 10.1 Define costing.
- 10.2 Classify the different types of cost involve in spinning mill.
- 10.3 Analysis the fixed cost, variable cost, of spinning mill.
- 10.4 Calculate the break-even point of spinning mill.

**Practical**

1. Draw the machine diagram of blow room machineries
  - a). Uni clen
  - b). Uni flex.
  - c). Uni mix.
2. Draw the Rotor spinning m/c. and indicate the different part.
3. Draw the Air Jet spinning m/c. and indicate the different part.
4. List the change places from blow room to Ring frame.
5. List the change places from blow room to Ring frame for p/c blend yarn production.
6. List the change places from blow room to Ring frame for viscose cotton blend yarn production.
7. Sketch and show core yarn cross-section.
8. Sketch and show the slub yarn parameter.

**Book references:**

1. New spinning system- Nodal centre for up gradation of textile education (NICTE)
2. New spinning processes- w klein.
3. Yarns and technical textiles- K. P. chellamani & Debasis chattapadh yay.
4. Textiles Fibre to fabric- Corbman
5. Textiles- Norma Hollen, jane saddles & Anna L. Langford.

<b>1973</b>	<b>TEXTILE DESIGN AND COLOUR</b>	<b>T</b>	<b>P</b>	<b>C</b>
		2	3	3

**AIMS:**

1. To familiarize the students with the drawing instrument and their uses.
2. To develop the skill of the student in making designs.
3. To give the students a clear concept about light and colour.
4. To familiarize with colour and weave effects.
5. The students able to develop knowledge, skill and attitude in the area of Textile design and colour.

**SHORT DESCRIPTION**

Basic concept of drawing instruments and their uses; Designing; Motif and repeat of a design; Construction of design from incomplete repeats; Light and colour phenomena; Theory of colour; Colour harmony and contrast of colour; Colour and weave effect; Check-stripe and shaded design.

**DETAIL DESCRIPTION****Theory:****1.0 Understand drawing instruments and their uses.**

- 1.1 List the instruments used for drawing.
- 1.2 Describe different instruments used for drawing.
- 1.3 Discuss about tracing paper with its use.
- 1.4 Use of graph paper in drawing & designing.
- 1.5 Explain the general rules to be obeyed during drawing.
- 1.6 Describe the effect of light and shade in a drawing.

**2.0 Understand the basic concept of design:**

- 2.1 State the importance of design.
- 2.2 Mention the classification of designs.
- 2.3 Discuss the principles of selecting a design for particular end product.
- 2.4 Discuss about different colour viz water colour, oil colour and pastel colour.

**3.0 Understand motif and repeat of a design.**

- 3.1 Define motif and repeat of a design with their differences.
- 3.2 Describe the uses of motif and design.
- 3.3 Discuss the techniques of enlarging or reducing a design.
- 3.4 Describe the process of drafting a design from plain paper to graph paper according to fabric construction.

**4.0 Understand the construction of design from incomplete repeats.**

- 4.1 Mention the causes of incomplete design.
- 4.2 Describe the process of producing a complete design from an incomplete design.
- 4.3 Describe the methods of reproducing a design from a woven fabric sample.

**5.0 Understand the light and colour phenomena & theory of color.**

- 5.1 Describe the effect of lusture and colour of fabric to light.
- 5.2 State the physical basis of colour and colour of matters.
- 5.3 State the theory of colour.
- 5.4 Mention the classification of the theory of colour.
- 5.5 Describe the Brewster circle and explain pigment theory of colour from Brewster theory.

**6.0 Understand colour.**

- 6.1 Define the colour.
- 6.2 Mention the classification of colour with their definition and uses.
- 6.3 Describe complementary colour and explain it with young-Helmholtz theory.
- 6.4 Define chromatic circle and state the technique of drawing chromatic circle.
- 6.5 Mention the uses of chromatic circle.
- 6.6 Describe the attributes of primary and secondary colour.
- 6.7 Define pure colour, broken colour, shade, tint, tone, hue, cold colour, hot colour, opaque colour, transparent colour.
- 6.8 Mention the uses of colour.

**7.0 Understand harmony and contrast of colour.**

- 7.1 Define, classify and describe the harmony and contrast of colour.
- 7.2 Discuss about modifications of colour.
- 7.3 Discuss coloured grey.
- 7.4 Describe the practical applications of modified colour.
- 7.5 State the factors, modifying the colouring of Textile fabrics.

**8.0 Understand colour and weave effect.**

- 8.1 Define colour and weave effects.
- 8.2 Mention the classifications of colour and weave effects.
- 8.3 Explain the methods of producing colour and weave effect with the techniques of representing the design and colour on graph paper.

**9.0 Understand Check, Stripe and Shaded design.**

- 9.1 Define stripe and check design with their differences.
- 9.2 Describe the effects of colour and weave effects.

- 9.3 Discuss the factors to be considered for the selection of weave for stripe and check designs.
- 9.4 Describe check and stripe design.
- 9.5 Describe shaded design with example.

### **10.0 Understand dark -room activities for screen preparation.**

- 11.1 Mention the importance of a dark room for screen preparation.
- 11.2 Explain the role of a camera for screen preparation.
- 11.3 Describe the process of making a screen.

### **Practical:**

1. Draw at least 5 designs with water colour, oil colour and pastel colour.
2. Draw at least 5 designs showing shaded effect.
3. Draw at least 5 designs for selvedge of a Sari.
4. Draw at least 5 designs for body of a Sari.
5. Draw at least 10 geometrical designs mention the purpose.
6. Enlarge a given design to the required size.
7. Construct a plain paper design from a given printed sample.
8. Construct a graph paper design from a given fabric sample.
9. Draw Brewster circle and explain the pigment theory of colour.
10. Draw chromatic circle and prove young-Helmholtz theory.
11. Draw some designs from given motif.
12. Prepare screen from given design for screen printing.

### **References Book**

1. Watsons Textile design & colour- Nisbet
2. Designers guide to colour- D.Patterson Allen.
3. W<sup>a</sup>Bs wWRvBb A<sup>v</sup>Û Kvjvi- cÖ‡KŠkix Av.K.g dwi`yj AvRv`
4. Pvi“ I Kvi“Kjv - lô †k<sup>a</sup>Yx RvZxq wk¶|vµg I cvV“cy<sup>-</sup>—K †evW©|
5. cÖv\_wgK BwÄwbqvwis W<sup>a</sup>Bs - ‡ngš— Kzgvi fU<sup>a</sup>vPvh©`|
6. Textile weaving and design-W. S. MURPHY.



1974

**FASHION AND DESIGN**

T	P	C
2	3	3

**AIMS**

1. To develop basic knowledge regarding fashion.
2. To develop knowledge of design.
3. To familiarize with fashion accessories.
4. To acquire knowledge in fashion drawing.
5. To develop skill, knowledge and market promotion of apparels.

**SHORT DESCRIPTION:**

Basic concept of fashion style and accessories; Product and design development; Fashion merchandising and market promotion; Fashion drawing from life; Fabric representation; Fashion illustration.

**Theory:****1.0 Understand the style and fashion.**

- 1.1 History of fashion.
- 1.2 State the importance of style and fashion in human life.
- 1.3 Mention the classification of fashion.
- 1.4 State the importance of hair style to fashion.
- 1.5 State the importance of make-up to fashion.
- 1.6 State the importance of costume to fashion.
- 1.7 State the importance of body fitness to fashion.
- 1.8 State the importance of contact lance to fashion.
- 1.9 State the importance of jewelry to fashion.
- 1.10 State the importance of footwear to fashion.
- 1.11 Define the term style and fashion.
- 1.12 National & religion festival to fashion.

**2.0 Understand the international fashion centers.**

- 2.1 Name the well known international fashion creators.
- 2.2 Explain the reasons for French fashion leadership.
- 2.3 Discuss the growth and importance of the pret-a-porter.
- 2.4 List the reasons for the importance of New York as a fashion centers.
- 2.5 Discuss the role of international and domestic fashion centers.

**3.0 Understand the product and design development.**

- 3.1 Describe line development by item or by group.
- 3.2 Explain the important elements and principles of design and their application to development.
- 3.3 Describe the process of creation a sample garment.

**4.0 Understand the fashion accessory and fur manufacturing.**

- 4.1 Discuss the unique design considerations of various accessories.
- 4.2 List the fashion accessories.
- 4.3 Describe production methods for the major accessories.
- 4.4 Explain accessory design and production centers.
- 4.5 Discuss the marketing aspects for accessories.
- 4.6 Explain fur garment production.
- 4.7 Explain the threads, elastic, interfacing, narrow fabrics, zippes, button, belt are produced and used

**5.0 Understand the wholesale markets, sales promotion and distribution.**

- 5.1 List the major international markets of apparel.
- 5.2 Discuss collection openings, line releases and market weeks.
- 5.3 Describe distribution polices.
- 5.4 Discuss various aids to selling.
- 5.5 Mention the forms of sales promotion.
- 5.6 Explain the use of EDI in distribution.

**6.0 Understand the retail stores.**

- 6.1 Explain Today's retail situation and trends.
- 6.2 Discuss the various types of retail store.
- 6.3 Explain the organizational differences between single-unit and multiple-unit stores.
- 6.4 Mention the major international stores and famous shopping areas.
- 6.5 Distinguish between the organizational structure of small store with that of a large store.
- 6.6 Explain the growing importance of non-store retailing.
- 6.7 Explain store's fashion image is conveyed to consumer groups and manifested in store policies.

**7.0 Understand the drawing from life.**

- 7.1 Mension proportion-natural, elongated figures (men's and women's).
- 7.2 Mension women's, men's and children's poses.
- 7.3 Mension children's, women's and men's heads.
- 7.4 Mension proportion-heads, hands and feet.
- 7.5 Mension women's and men's hands.
- 7.6 Mension children's hands and feet
- 7.7 Mension women's and men's feet.
- 7.8 Mension women's men's, children's and babies boots and shoes.

**8.0 Understand the fabric representation.**

- 8.1 Describe depth and shine.
- 8.2 Describe faux fur and wool and lace.
- 8.3 Describe wool and faux fur.
- 8.4 Describe folds and fringing.
- 8.5 Describe highlights and pleats.
- 8.6 Describe lace and embroidery.

**9.0 Understand the sketch book.**

- 9.1 Describe Ideas and concept of sketch look.
- 9.2 State Shop or reports.
- 9.3 Describe design development.

**10.0 Understand the fashion illustration.**

- 10.1 State composition of fashion illustration.
- 10.2 Describe stylization.
- 10.3 Describe drawing for promotion.
- 10.3 Describe drawing children.
- 10.5 Describe children as cartoons.
- 10.6 Describe children's wear.

**11.0 Understand the drawing for manufacture.**

- 11.1 List the basic equipment of drawing.
- 11.2 Describe the drawing from the dress stand.
- 11.3 Describe developing the template.
- 11.4 Describe developing the stencil.
- 11.5 Describe design with a template of stencil.
- 11.6 Explain the garment construction.

**12.0 Understand the specialist areas.**

- 12.1 Describe active sportswear.
- 12.2 Describe drawing accessories.

**Practical:****Fashion drawing****Demonstrate from life.**

- 1. Draw proportion-natural, elongated figures (men's and women's).
- 2. Draw women's poses.
- 3. Draw children's poses.
- 4. Draw women's heads.
- 5. Draw proportion-heads, hands and feet.
- 6. Draw women's hands.

7. Draw children's hands and feet
8. Draw women's feet.
9. Draw women's boots and shoes.

**Show skill of fabric representation.**

10. Identify depth and shine.
11. Identify wool and faux fur.
12. Identify folds and fringing.
13. Identify highlights and pleats.
14. Make embroidery.

**Show skill in sketch book.**

15. Ideas and concept.

**Show skill in fashion illustration.**

16. Show children as cartoons.
17. Illustration garments and detail.

**Drawing for manufacture.**

18. Draw the dress stand.
19. Develop the template.
20. Develop a stencil.

**Specialist areas.**

21. Active sportswear/Prepare.
22. Identify drawing accessories.

**References Book**

1. Fashion From concept of consumer.-----By Gini Stephens Frings.
2. Fashion Accessories  
The complete 20<sup>th</sup> century sourcebook  
with 2000 full- colour illustrations ----- By. John peacok
3. Fashion illustration now ----- By. Laird Borrelli
4. Illustrating fashion By----- Kathryn Mc kelvey and janine Munslow.

<b>1975</b>	<b>ADVANCED KNITTING AND NON-WOVEN</b>	<b>T</b>	<b>P</b>	<b>C</b>
		2	3	3

**AIMS**

1. To develop advance the students able knowledge of knitting fundamentals.
2. To enable to understand the concepts of knitting machinery.
3. To make understand the knowledge of Knit fabric construction.
4. To develop the knowledge of quality control of knit fabrics.
5. To develop the knowledge of non-woven fabric.

**SHORT DESCRIPTION**

Knitting fundamentals developed warp & weft knitting fabric; multi-axial fabrics; Non-woven fabrics; Bonding material; Fibrous raw material & production of non-woven fabrics.

**1.0 Understand the knitting fundamentals.**

- 1.1 Define the term knitting process.
- 1.2 Mention the classification of knitting process.
- 1.3 Describe the different structural fabrics with diagram.  
loop, stitch, plain stitch, purl stitch, needle loop, sinker loop, tuck loop, float stitch, warp knitted laps, tuck, miss stitch, over lap, under lap, closed lap, open lap.
- 1.4 Describe the arrangement of structural elements i.e. Plain knitted fabrics, double knitted fabrics, double knitted rib fabrics, double knitted interlock fabrics, double knitted purl fabrics.

**2.0 Understand the high quality weft knitting production.**

- 2.1 Describe the high quality cotton knit goods production.
- 2.2 Describe the production of knit goods from yarn containing man made fibre.
- 2.3 State the uses of linear and non linear cams in weft knitting.
- 2.4 Discuss the automation of weft knitting industry.
- 2.5 Calculate the production of weft knitting.

**3.0 Understand the single jersey jacquard.**

- 3.1 State the term of weft knitting jacquard.
- 3.2 Describe the coloured stitch design in weft knitting.

**4.0 Understand the multi-axial knitted fabric construction.**

- 4.1 Define the term of multi-axial knitted fabric.
- 4.2 Describe the multiaxial raschel knitting machine
- 4.3 Mention the uses of multi-axial fabrics.

**5.0 Understand the development of warp knitting machine.**

- 5.1 Define the term “multiple guide warp knitting machine”.
- 5.2 Mention the product of multiple guide warp knitting machine
- 5.3 Describe the multiple guide warp knitting machine.
- 5.4 Describe the warp knitted fabric faults with their remedies.

**6.0 Understand the Non-woven.**

- 6.1 Define the term “non-woven fabrics”.
- 6.2 State the history of non-woven fabrics.
- 6.3 Discuss the characteristic and properties of non woven fabrics.
- 6.4 Distinguish between woven & non-woven fabrics.
- 6.5 Describe the binding & bonding techniques of non -woven fabrics.
- 6.6 Discuss the arrangement of the fibre in the non- woven fabrics.
- 6.7 List the binding elements of non-woven fabrics.
- 6.8 Mention the classification of non-woven fabrics
- 6.9 State the characteristics of laminated fabrics.

**7.0 Understand the adhesives and bonding.**

- 7.1 Define adhesive and bonding.
- 7.2 State the functions of bonding process.
- 7.3 Discuss the testing adhesion stickiness’.
- 7.4 Mention the problems of adhesives.
- 7.5 Describe the adhesive substances of non-woven fabrics.

**8.0 Understand the fibrous raw materials.**

- 8.1 State the term fibrous raw material.
- 8.2 State the function of the fibres in non woven fabrics.
- 8.3 Describe the properties of fibrous for matrices.
- 8.4 Discuss the requirements of the fibres for non woven fabrics.

**9.0 Understand the Production of non woven fabrics.**

- 9.1 Show the flow chart of producing non woven fabric.
- 9.2 Discuss the flow process of non- woven fabric production.
- 9.3 Discuss the principles of production of mechanically bonded non woven fabric.
- 9.4 Discuss the principles of production stitch bonding without binding thread with binding thread.
- 9.5 Mention the uses of non woven fabrics.

**Practical**

1. Show with diagram the inter looping of different knit fabrics.
2. Draw and identify the different loop i.e. Face and reverse meshed loop, closed lap , open lap, under lap ,overlap, knitted stitch etc,
3. Draw and identify the cross - section of knitting head of a single jersey machine with diagram.
4. Show the knitting cycle of a single jersey latch needle machine.
5. Sketch and show the sinker timing on a single jersey machine.
6. Show the tuck stitch produced on latch need machine.
7. Show the stitches of single jersey jacquard in a knit fabric.
8. Show the stitches of double jersey structure and the notation of different knit fabrics.
9. Show the diagram of rib loop transfer on a modern V-bed machine.
10. Draw and identify the mechanical jacquard selection on a V-bed flat knitting machine.
11. Show the diagram of knitting element and cross- section of a bearded needle tricot machine.
12. Show the diagram of cross- section of latch needle rachel machine
13. Show the diagram of mechanical bonded non- woven fabrics with production.
14. Show the diagram and production of stitch bonding non -woven fabrics.
15. Show the diagram and production of non woven fabrics without stitch bonding.

**References Book:**

Manual of non woven

by – Prof. Dipl, Ing. Dr. Radko Krcnea. Manchester Eagland

**1976****MAINTENANCE OF TEXTILE MACHINERY**

T	P	C
0	6	2

**AIMS:**

1. To enable the students to operate the individual Textile machine.
2. To enable the students to make the maintenance schedule of Textile machine.
3. To enable the students to set and adjust the Textile machine as per requirement.
4. To enable the students to dismantle and resetting the Textile machine.
5. To enable the students to change and set all the parts of Textile machine as per requirement.
6. To enable the students to replace the broken or worn-out parts.
7. To make the students familiar with oiling, greasing, cleaning of textile machine.
8. The students able to develop skilled attitude in the area of Textile machinery.

**SHORT DESCRIPTION :**

Basic concept of cleaning; Setting; Adjustment; Lubricating; Making maintenance schedule. Draft and Twist setting; Taper & coils setting; Roller setting; Tape joining; Cot buffing and pushing and cot treatment of different machinery.

Basic concept of Setting; Adjusting; lubricating; Cleaning & making maintenance schedule of knitting machinery.

Basic concept of cleaning; Lubricating; Adjustment/Setting of Screen; Rollers; Repairing & Replacement of parts; Screen mounting; Making schedule for maintenance of the following wet processing machinery; Basic concept of cleaning, Lubrication for maintenance of the garments machinery.

**PRACTICAL:****1.0 Understand the basic Concept of Maintenance**

- 1.1 Define Maintenance
- 1.2 Introduce with different tools & gauges used in maintenance.
- 1.3 Classes of maintenance.
- 1.4 Differentiate between Maintenance & over hauling.
- 1.5 Differentiate between BMRE & erection of Textile Machinery.

**2.0 Demonstrate the application cleaning of spinning machinery.**

- 2.1 Perform the different parts of blow room cleaning.
- 2.2 Perform the carding machine cleaning
- 2.3 Perform the drawing & lap former cleaning
- 2.4 Perform the comber cleaning



2.5 Perform the simplex cleaning

2.6 Perform the ring cleaning.

### **3.0 Demonstrate the skill setting and adjustment of spinning machinery**

3.1 Identify setting & adjustment of different parts of blow room.

3.2 Identify setting & adjustment of carding machine.

3.3 Identify setting & adjustment of drawing & lap former

3.4 Identify setting & adjustment of comber

3.5 Identify setting & adjustment of simplex

3.6 Identify setting & adjustment of ring frame.

### **4.0 Demonstrate skill in lubricating of spinning machinery**

4.1 Identify the lubricating Points and lubricate the blow room machinery.

4.2 Identify the lubricating points and lubricate the carding machine

4.3 Identify the lubricating points and lubricate the drawing & lap former.

4.4 Identify the lubricating points and lubricate the comber machine.

4.5 Identify the lubricating points and lubricate the simplex machine.

4.6 Identify the lubricating points and lubricate the ring frame.

### **5.0 Perform cleaning, lubricating setting, adjustment and making the schedule of maintenance of weaving machinery.**

5.1 Practice the cleaning, lubricating, setting, adjustment and making the maintenance schedule of sectional warping.

5.2 Practice the cleaning, lubricating, setting, adjustment and making the maintenance schedule of sizing machine.

5.3 Practice the cleaning, lubricating, setting, adjustment and making the maintenance schedule of plain power loom.

5.4 Practice the cleaning, lubricating, setting, adjustment and making the maintenance schedule of modern loom. i.e, Rapier, Air-jet and projectile loom.

### **6.0 Perform the cleaning, lubricating, setting, adjustment and making the schedule of maintenance of knitting machinery.**

6.1 Practice the cleaning, lubricating, setting, adjustment and making the maintenance schedule of single-jersey machine.

6.2 Practice the cleaning, lubricating, setting, adjustment and making the maintenance schedule of interlock knitting machine.

6.3 Practice the cleaning, lubricating, setting, adjustment and making the maintenance schedule of dial linking machine.

6.4 Practice the cleaning, lubricating, setting adjustment and making the maintenance schedule of flat bed knitting machine.

6.5 Practice the cleaning, lubricating, setting, adjustment and making the maintenance schedule of Rib knitting machine.

**7.0 Perform cleaning, lubricating & making maintenance schedule for the wet processing machinery.**

7.1 Practice, lubricating & make schedule of flat bed screen and rotary screen printing machine.

7.2 Practice the cleaning, lubricating and make schedule of roller printing machine.

7.3 Practice the cleaning, lubricating & make schedule of stenter machine.

7.4 Practice the cleaning, lubricating & make schedule of compactor machine.

7.5 Practice the cleaning, lubricating and make schedule of calendaring machine.

**8.0 Perform the maintenance of printing & finishing machine.**

8.1 Perform maintenance of screen preparing tools & equipment.

8.2 Skillfully set screen in flat bed & rotary screen printing machine.

8.3 Skillfully mount screen for rotary screen printing machine.

8.4 Skillfully adjust the width of fabric & speed of stenter machine.

8.5 Skillfully adjust the calender pressure for different types of fabrics.

**9.0 Perform the cleaning, lubricating, adjustment, setting & making schedule for maintenance of garments machinery.**

9.1 Practice the cleaning lubricating adjustment, setting & making schedule of bar tack & bar hamming machine.

9.2 Practice the cleaning, lubricating, adjustment, setting & making schedule of collar turning machine.

9.3 Practice the cleaning, lubricating adjustment, setting & making schedule of cuff turning machine.

9.4 Practice the cleaning, lubricating, adjustment, setting and making schedule of fusing machine.

**10.0 Perform the dismantle & reassemble of knitting machinery**

10.1 Practice to dis-mantle & re-assemble the button hole & flat lock machine.

10.2 Practice to dismantle & reassemble the collar & cuff turning machine.

10.3 Practice to dismantle & re-assemble the fusing machine.

10.4 Practice to install the base of head for the flat & button hole machine.

10.5 Practice to adjust thread tension.

**Reference Books:**

1. Textile Mill Technical Data Book  
-by R. Jagannathon
2. Spinning Maintenance Manuel  
- SITRA

1977

**TEXTILE CALCULATION-II**

T	P	C
2	0	2

**AIMS:**

- To develop the basic knowledge to calculate
 

a) Winding	b) Warping
c) Sizing	d) Loom and knitting production.
e) Read count and heald count.	f) Fabric calculation
g) Fabric requirement in garment.	h) Sewing thread consumption
j) Costing	

**SHORT DESCRIPTION:**

Calculation of winding; Calculation of warping; Calculation of sizing; Calculation of heald count and Reed count; Calculation of loom and knitting productions, Cloth calculation; Calculation of cloth requirement in garments; Sewing thread consumption & costing.

**DETAIL DESCRIPTION****1.0 Understand the calculation of winding**

- 1.1 Calculate the speed of drum by gearing sketch of spool winding.
- 1.2 Calculate the traversing rate & production of spool winding.
- 1.3 Calculate the speed of pirn spindle by gearing sketch of pirn winding.
- 1.4 Calculate the production of pirn winding.
- 1.5 Solve the problems.

**2.0 Understand the calculation of warping.**

- 2.1 Calculate the production of warping by gearing sketch of machine.
- 2.2 Calculate the number of ends for specific beam & fabric.
- 2.3 Calculate the total number of yarn package required for specified fabrics.
- 2.4 Solve the problems.

**3.0 Understand the calculation of sizing.**

- 3.1 Calculate the production of sizing by gearing sketch of machine.
- 3.2 Calculate the size pick-up percentage
- 3.3 Calculate the number of ends for specified fabrics.
- 3.4 Calculate the different amount of size ingredients.
- 3.5 Solve the problems.

**4.0 Understand the heald count & reed count**

- 4.1 Define heald count & reed count.
- 4.2 List the different types of heald count & reed count.
- 4.3 Calculate the heald count & reed count.
- 4.4 Calculate the drop wire & heald wire for different types of fabric.
- 4.5 Solve the problems.

**5.0 Understand the loom and knitting calculation and production.**

- 5.1 Select the heald and reed for different types of fabric production.
- 5.2 Calculate the loom constant & picks per inch.

- 5.3 Calculate the speeds of crank shaft & bottom shaft by gearing sketch.
- 5.4 Calculate loom and knitting efficiency & production.
- 5.5 Solve the problems.

#### **6.0 Understand the fabric calculation.**

- 6.1 Mention the warp & weft requirement for weaving.
- 6.2 List the different types of fabric specification (woven and knitted fabric).
- 6.3 Calculate the weight of warp yarn & weight of weft yarn for specified woven fabric.
- 6.4 Calculate the weight of cloth in ozs/sq yd and gms/sq-meter.
- 6.5 Solve the problems.

#### **7.0 Understand the dye requirement in dyeing section.**

- 7.1 Mention the factors of selection of dye recipe.
- 7.2 Calculate the amount of different dyes & chemicals for different dye recipe.
- 7.3 Calculate the required dye liquor solution for different recipe.
- 7.4 Calculate the shade percentage for different dyeing.
- 7.5 Solve the problems.

#### **8.0 Understand the cloth requirement of garments.**

- 8.1 State the term fabric consumption.
- 8.2 Describe the method to find out the fabric consumption.
- 8.3 Find the requirement of fabric for type & sizes of garments.
- 8.4 Solve the problems.

#### **9.0 Understand the sewing thread consumption.**

- 9.1 Describe the methods to find out the thread consumption.
- 9.2 Mention the factors of thread consumption of the garments.
- 9.3 Calculate the thread consumption for specified garments.

#### **10.0 Understand the calculation of costing.**

- 10.1 Mention the factors of costing.
- 10.2 Calculate the cost of yarn production.
- 10.3 Calculate the cost of fabric production for fabric manufacturing.
- 10.4 Calculate the cost of dyed fabric production for wet processing.
- 10.5 Prepare a costing sheet of sewing thread for producing shirt & trouser.
- 10.6 Calculate the cost of garments production for clothing technology.
- 10.7 Calculate waste in over process maximum utilization for production.
- 10.8 Machinery selection i.e high speed machine, low energy consumption machine, minimum manpower, low add-on system.
- 10.9 Re Process control.
- 10.10 Recovery system.
- 10.11 R.F.T (Right First Time)

#### **REFERENCE BOOK**

- |                         |   |                         |
|-------------------------|---|-------------------------|
| 1. Weaving Mechanism    | - | Talukder                |
| 2. Weaving Calculation  | - | Sengupth                |
| 3. Principle of Weaving | - | Mark and ATC Robbinson  |
| 4. Textile calculation  | - | Engr. A.K.M. Fazlul Haq |

<b>7074</b>	<b>PRODUCTION PLANNING AND CONTROL</b>	<b>T</b>	<b>P</b>	<b>C</b>
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**AIMS**

- To be able to understand the concepts, principles and techniques in terms of production in appreciating to choose efficient methods of production.
- To be able to understand the concepts, principles and techniques of production planning with a purpose in selecting appropriate site to set up a new factory.
- To be able to interpret new condition on a practical field for solving production problems.
- To be able to understand the production principles, techniques and their effect in production.
- To be able to appreciate the importance of familiarization with the various activities involved in the method and planning of production.

**SHORT DESCRIPTION**

Production system; division of labor; production planning; localization of industry; time study and motion study; selection of factory site; factory building; plant layout; equipment layout; operation of factory; production control; quality control; cost control; inventory control; materials handling; case study.

**DETAIL DESCRIPTION**

- 1 Understand different production systems.**
  - 1.1 Describe the scope and activity of production systems.
  - 1.2 Describe the factors to be considered in production.
  - 1.3 Distinguish job, batch and mass production.
  - 1.4 Describe the scale of production.
  - 1.5 Mention merits and demerits of small scale production.
  - 1.6 Mention the merits and demerits of large scale production.
- 2 Understand the importance and scope of production planning.**
  - 2.1 Define production planning.
  - 2.2 Describe importance of production planning.
  - 2.3 State the different types and techniques of production planning.
  - 2.4 Describe routing and scheduling procedures.
  - 2.5 Describe machine loading.
  - 2.6 Describe products despatching and follow up it.
  - 2.7 State the benefits of production planning.
  - 2.8 Describe job planning, execution of job and monitoring.
  - 2.9 Describe recording and feed back.
- 3 Understand the importance of localization of industry.**
  - 3.1 Describe localization of industry.
  - 3.2 Describe the factors which effect the localization of industry.
  - 3.3 Narrate the advantages of proper localization of industry.
- 4 Understand the importance of time and motion study.**
  - 4.1 Define motion study, micro-motion study and time study.
  - 4.2 Describe work simplification.
  - 4.3 Describe the uses of equipment of motion study.

- 4.4 Describe the different techniques of motion study.
  - 4.5 Describe time study procedures and its limitations.
  - 4.6 Describe gant chart and the therbligs.
  - 4.7 Distinguish between time study and motion study.
  - 4.8 Determine the standard time for a job with the help of stop-watch method.
- 5 Understand the importance of selection of factory site.**
- 5.1 Describe the basis of site selection of a factory.
  - 5.2 Describe the factors for correct selection of factory site.
  - 5.3 Narrate the advantages of correct site selection.
- 6 Understand the importance of factory building.**
- 6.1 State the characteristics of factory building.
  - 6.2 State the different types of factory building.
  - 6.3 Describe the factors involved in selecting factory building.
  - 6.4 Mention the advantages and disadvantages of different types of building.
- 7 Understand the importance of plant layout.**
- 7.1 Explain plant lay out.
  - 7.2 Describe the fundamental factors of plant layout.
  - 7.3 Describe the different types of manufacturing plants.
  - 7.4 Relate the influences of processes on plant layout.
  - 7.5 Explain the necessity of studies of plant layout.
- 8 Understand the importance of equipment layout.**
- 8.1 Define equipment layout.
  - 8.2 Identify the factors to be considered for equipment layout.
  - 8.3 Enumerate the different types of equipment layout.
  - 8.4 Compare product and process layout.
- 9 Understand the techniques involved in operation of factory.**
- 9.1 Define operation, operation sheet and operation schedule.
  - 9.2 Prepare operation sheet.
  - 9.3 Prepare operation schedule.
  - 9.4 Distinguish between process chart and flow diagram.
- 10 Understand the importance of production control.**
- 10.1 Define production control.
  - 10.2 Describe the factors involved in production control.
  - 10.3 Narrate the advantages of production control.
- 11 Understand the importance of quality control.**
- 11.1 Define quality control.
  - 11.2 Describe objectives and principle of quality control.
  - 11.3 Describe procedure of quality control.
  - 11.4 Describe the benefits of quality control.
  - 11.5 Discuss the role of quality control department.
- 12 Understand the importance of cost control.**
- 12.1 Define cost control.
  - 12.2 State the objectives of cost control.
  - 12.3 Describe the procedures of cost control.

12.4 Describe the advantages of cost control.

**13 Understand the necessity of inventory control.**

13.1 Define inventory control.

13.2 State the objectives of inventory control.

13.3 Describe the different types of inventory control methods.

13.4 Enumerate the advantages of inventory control.

13.5 Describe the effects of inventory control for store management.

**14 Understand the effects of material handling.**

14.1 Describe the principles, laminations and advantages of management.

14.2 Make materials handling layout.

14.3 Explain the factors to be considered for materials handling and handling equipment.

14.4 Classify handling equipment.

14.5 Describe derrick, ganty cranes and lifting devices.

14.6 Classify conveyors.

14.7 Describe the uses and maintenance of conveyors.

14.8 Explain economic considerations of using conveyors & other devices.

14.9 Explain safety requirements.

**15. Understand case study**

15.1 Define case study.

15.2 Explain the necessity of case study.

15.3 Explain 'SIX M'.

15.4 Study specific cases relating production.

**REFERENCE BOOKS**

1. Production planning control and industrial management

– K.C Jain

L.N Aggarwal

2. The principle of industrial management

– Alford and Betty

3. Drcv`b e`e`vcbv

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**ENTREPRENEURSHIP**

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**AIMS**

- To be able to understand the concept of entrepreneurship & entrepreneur.
- To be able to understand the concept of environment for entrepreneurship.
- To be able to understand the sources of venture ideas in Bangladesh.
- To be able to understand the project selection.
- To be able to understand business planning.
- To be able to understand the case study

**SHORT DESCRIPTION**

Concepts of entrepreneurship & entrepreneur; Entrepreneurship & economic development; Environment for entrepreneurship; Entrepreneurship in the theories of economic growth; Sources of ventures ideas in Bangladesh; Evaluation of venture ideas; Financial planning; Project selection; Self employment; Entrepreneurial motivation; Business plan; Sources of assistance & industrial sanctioning procedure.

Insurance; case study.

**DETAIL DESCRIPTION****Theory :****1 Understand the basic concept of entrepreneurship & entrepreneur.**

- 1.1 Define entrepreneurship & entrepreneur.
- 1.2 Discuss the characteristics and qualities of entrepreneur.
- 1.3 Mention the classification of entrepreneur.
- 1.4 Discuss the case entrepreneurship and mass entrepreneurship.
- 1.5 Discuss the necessity of entrepreneurship as a career.
- 1.6 Discuss the function of entrepreneur in developing countries.
- 1.7 Discuss the prospect of entrepreneurship development in Bangladesh.

**2 Understand the concept of entrepreneurship and economic development.**

- 2.1 Define economic development.
- 2.2 Discuss that the economic development is a process.
- 2.3 Describe the entrepreneurship as a factor of economic development.
- 2.4 Discuss the capital accumulation or rate of savings.
- 2.5 Discuss the role of entrepreneur in the technological development and their introduction into production process.
- 2.6 Discuss the entrepreneur in the discovery of new sources of resources.
- 2.7 Discuss the entrepreneur in the discovery of new product.
- 2.8 Discuss the discovery of new markets.

**3 Understand the concept of entrepreneurship in the theories of economic growth.**

- 3.1 Define entrepreneurship in the theories of economic growth.
- 3.2 Discuss the theory of need for achievement of David Maclelland.
- 3.3 Discuss the Malthusian theory of population and economic growth.
- 3.4 Discuss the labour theory of production and limit to growth.
- 3.5 Discuss the Keynesian theory of employment and output.
- 3.6 Discuss the stage theory of growth.
- 3.7 Discuss the Schumpeterian theory of economic development.
- 3.8 Discuss the entrepreneurship motive in economic development.



**4 Understand the sources of venture ideas in Bangladesh.**

- 4.1 Define sources of venture ideas in Bangladesh.
- 4.2 Discuss different types of sources of venture ideas in Bangladesh.
- 4.3 Discuss informal sources of venture ideas in Bangladesh.

**5 Understand the evaluation of venture ideas.**

- 5.1 Define evaluation of venture ideas.
- 5.2 Discuss the factors that influence the selection of venture ideas.
- 5.3 Discuss the evaluating financial aspects of business.
- 5.4 Discuss the determinants of the firm size.