



**B.TECH DEGREE EXAMINATIONS: APRIL / MAY 2023**

(Regulation 2018)

Sixth Semester

**FASHION TECHNOLOGY**

U18FTT6001: Apparel Production Planning and Control

**COURSE OUTCOMES**

- CO1:** Explain the basic techniques of production planning & control in garment industry
- CO2:** Choose production system for apparel industry based on style and quantity of merchandise
- CO3:** Prepare and analyze the flow process grids, control forms and scheduling charts for production control in apparel industry
- CO4:** Decide the suitable cut production analysis for various garment quantities
- CO5:** Determine the capacity planning and line balancing techniques to achieve balanced production
- CO6:** Update modern tools and methods of production planning and control

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 2 = 20 Marks)**

**(Answer not more than 40 words)**

- |   |     |                   |
|---|-----|-------------------|
| 1. Interpret the difference between CMT and FPP   | CO1 | [K <sub>2</sub> ] |
| 2. Brief about the different applications of product data specification   | CO1 | [K <sub>L</sub> ] |
| 3. For manufacturing 25000 pieces of Polo shirt, suggest the right production system.   | CO2 | [K <sub>3</sub> ] |
| 4. Brief about the different types of time considered in PERT   | CO3 | [K <sub>2</sub> ] |
| 5. State the objectives of scheduling.  | CO3 | [K <sub>2</sub> ] |
| 6. Predict the fabric consumed in cutting department from the following information<br>No of lays cut – 7, no of plies in a lay – 85, marker efficiency – 88%, marker length – 2.6m<br>and recut fabric is 20m. | CO4 | [K <sub>3</sub> ] |

7. Conclude which type of maker and spreading mode suitable for the following woven printed fabric. CO4 [K<sub>4</sub>]



8. State the objectives of line balancing CO5 [K<sub>2</sub>]
9. Advise which tracking system is effective for progressive bundle system CO5 [K<sub>L</sub>]
10. List the uses of RFID in garment factory CO6 [K<sub>2</sub>]

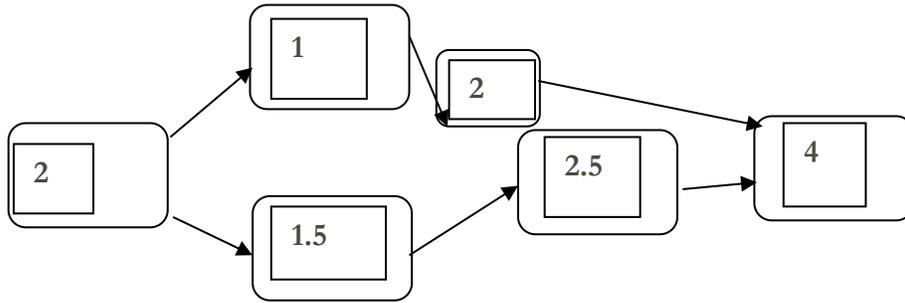
**Answer any FIVE Questions:-  
PART B (5 x 16 = 80 Marks)  
(Answer not more than 400 words)**

11. a) Discuss the different types of samples with their sign off/approval points. 8 CO1 [K<sub>2</sub>]
- b) Explain the activities carried out in pre-production processes – costing, pattern making & grading and material sourcing 8 CO1 [K<sub>L</sub>]
12. a) For given operations of Shirt, choose the machines and sewing attachments required to set the line. 8 CO2 [K<sub>L</sub>]

Operations	Sam value	Seam type
Attach placket to front	0.83	
Attach pocket	0.68	
Yoke attach to back	1.02	
Shoulder joining	0.80	

- b) Compare make through system and modular production systems. Highlight their advantages and disadvantages. 8 CO2 [K<sub>L</sub>]

13. a) Calculate the total forward pass time, Backward pass time and float time for the given Activity paths. Mark the critical path. 8 CO3 [K<sub>2</sub>]  
 Activity 1 – 2 hours, 2 – 1 hour, 3 – 1.5 hours, 4 – 2 hours, 5 – 2.5 hours, 6 – 4 hours.



- b) Day 1 – fabric issued to cutting, Day 1.5 – fabric spreading & cutting, Day 2 – cut parts bundling, Day 2.5 – bundled cut parts loaded to sewing, Day 4 – first day sewing output 300 pieces. Day 10 – Total number of 2100 garments completed. 8 CO3 [K<sub>2</sub>]  
 Calculate the lead time for sewing 1200 pieces, if the production per day in sewing is 300.  
 Calculate the lead time for loading cut parts to sewing and justify why zeroth day is considered for lead time calculation.
14. a) Calculate the cut order planning for the given order quantity. 8 CO4 [K<sub>4</sub>]  
 Maximum no of garments marked per lay – 4, Maximum No of plies per lay – 50, lay length – 3.5m.  
 Order quantity – 500 pieces in M size, 750 pieces in S size, 1000 pieces in L size and 750 pieces in XL size.
- b) Resolve the different types of marker modes and spreading modes for woven fabrics. 8 CO4 [K<sub>4</sub>]

15. a) 12 CO5 [K<sub>4</sub>]

Operators	Overlock machines	Chain stitch machine	Lock stitch machine
Raju	100		120
Ramesh		110	105
Ranjith	100	80	
Bala	110	120	110
Neha	130		100
Susan		100	80
Amrish	110	140	
Kajal	115		100

Total Sam value of a garment is 10 min, No of operations in the garment is 5. Operation 1 (overlock edges) takes 1.3 min, Operation 2 (chain stitch) – 1.4 min, Operation 3 (lock stitch)– 2.8min, Operation 4 (feed of arm chain stitch)– 1.5min and Operation 5 (Lock stitch) – 2min. Calculate the average time taken for each operation (pitch time) and balance the line by assigning the operators from the following operator pool

- b) Calculate the capacity of line from the following parameters. 4 CO5 [K3]  
Pitch time – 1.5 min, No of working days = 15, Working minutes per day = 400min, Attendance percentage – 85%, Line efficiency = 60%.
16. a) Choose a suitable tracking system for unit production system and explain its system architecture for data flow management. 8 CO6 [K2]
- b) Classify the three types of bundling followed in garment industry and justify whether it is possible to implement barcode tracking in item bundling. 8 CO6 [K2]

\*\*\*\*\*