KUMARAGURU
college of technology
character is life

B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2024

(Regulation 2018)

Sixth Semester

TEXTILE TECHNOLOGY

U18TXE0016: Industrial Engineering for Textile and Apparel Industry

COURSE OUTCOMES

CO1: Discuss the relationship between productivity and Apparel Engineering.

CO2: Explain the various method study techniques

CO3: Calculate the standard time by using work measurement techniques

CO4: Describe the Industrial Engineering concepts in apparel.

CO5: Explain how Line Balancing procedures carried out in garment industry

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions: -
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	A garment factory produces 500 shirts daily, utilizing 40 machines and employing 50 workers. Calculate the machine productivity and labor productivity based on this information.	CO1	[K4]
2.	Compare and contrast Production and Productivity.	CO1	[K2]
3.	Illustrate the flow chart symbols	CO2	[K2]
4.	Identify the primary techniques used in micro motion studies and discuss how they contribute to optimizing processes in the workplace.	CO2	[K2]
5.	Identify and describe the basic elements involved in sewing operations.	CO3	[K2]
6.	Define Standard Allowed Minutes (SAM) and explain its significance in production planning.	CO3	[K2]
7.	Calculate the production output over an 8-hour shift, given that the Standard Allowed Minute (SAM) is 1 minute per unit.	CO4	[K2]
8.	Explain how a capacity study can enhance operational efficiency	CO4	[K2]
9.	Calculate the Standard Allowed Minute (SAM) for the following observations: Given an operator working on a Single Needle Lock Stitch operation, determine the SAM using the following data: Observe the single cycle time as 0.85 minutes, apply a rating factor of 0.70, and include allowances of 20%.	CO5	[K2]
10.	Define line balancing and explain its significance in production processes.	CO5	[K2]

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

11.	a)	Evaluate the strategies employed by industrial engineers to optimize operations in textile and apparel manufacturing.	CO1	[K3]
	b)	Examine the benefits of productivity and assess how they correlate with the	CO1	[K3]

standard of living.

12.	a)	Identify and illustrate the key Principles of Motion Economy, highlighting their impact on workflow efficiency.	CO2	[K₃]
	b)	Illustrate and explain the flow process chart utilized in the apparel industry, providing a specific example to support your explanation.	CO2	[K₃]
13.	a)	Calculate the Standard Allowed Minutes (SAM) for a shirt, detailing each step of the procedure involved.	CO3	[K₃]
	b)	Discuss how rating factors and allowances impact the calculation of SAM in production planning.	CO3	[K₃]
14.	a)	Detail the methodologies implemented in executing a capacity study for sewing operators.	CO4	[K₃]
	b)	Create a comprehensive operation bulletin for the apparel industry. What elements must be addressed to enhance operational efficiency and employee understanding?	CO4	[K₃]
15.		Explain the procedure for line balancing in the apparel industry and provide an example to illustrate your explanation.	CO5	[K₃]
16		**Perform the Bundle Diagnosis for below data and comment.**	CO4	[K₄]

BUNDLE DIAGNOSIS FOLLOW UP

NAME :Rani

OPERATION : TOP STITCH ARMHOLE

SAM : 1.2

TYPE OF MACHINE USED : SINGLE NEEDLE LOCK STITCH

SC @100 = 0.924.

ACTION	SC@100%
Pick up	0.165
Process	0.399
Dispose	0.06
Bundle Handling	0.3

Piece No.	Bundle Handling	Observed SC Readings		
		Pickup	Process	Dispose
1	0.16	0.310	0.521	0.072
2		0.300	0.512	0.070

3		0.312	0.515	0.074
4		0.301	0.509	0.078
5		0.314	0.518	0.073
6		0.316	0.485	0.073
7		0.314	0.475	0.062
8		0.285	0.453	0.075
9		0.275	0.412	0.064
10	0.152	0.26	0.418	0.062
TOTAL				
AVERAGE TIME TAKEN				
TARGET TIME				
EFFICIENCY				

****