



Amrita School of Engineering, Chennai

Industrial Engineering / 19MEE401

Assignment 1

Semester / Year: VII, V / IV, III
Issue Date: 31-07-2024

Course Faculty: Dr. Vignesh M
Due Date: 09-08-2024

Answer the following questions:

Total Marks = 30 (3 x 10 Marks)

S. No	Questions	CO
1.	<p>Student tuition at Boering University is \$ 100 per semester credit hours. The states supplement school revenue by matching student tuition, dollars per dollars. Average class size for typical three credit course is 50 students. Labor costs are \$4000 per class, material costs are \$20 per student, and overhead cost are \$25,000 per class.</p> <p>Find:</p> <p>a) What is the multifactor productivity ratio?</p> <p>b) If instructors work an average, what is the labor productivity ratio? (Keep in mind that professor delivering the lecture work 14 hours per week the semester last for 16 weeks)</p>	CO1
2.	<p>The work shift at the XYZ Company runs from 7:30 a.m. to 4:15 p.m. with a 45 min break for lunch from 11:30 to 12:15 p.m. that does not count as part of the work shift (workers are not paid for this time). The company provides two 12-min rest breaks during working hours (paid time), one in the morning and one in the afternoon. The company also allows 50 min per day for personal needs (paid time). In addition, a work sampling study has shown that on average, unavoidable delays in the plant result in 30 min lost time per worker per day (paid time). Determine the PFD allowance factor for the following two management policies on allowances: (a) the two 15-min breaks are both scheduled breaks that all workers take at the same time and (b) the two 15-min</p>	CO1

	breaks are included in the allowance factor so that workers can take their breaks whenever they please.																					
3.	<p>The two steps in preparing chocolate candy bars are molding and packaging. Personal fatigue and delay allowances are set at 15%. The molding machine operator is rated at 110% and the packer is rated at 80%. Observed times per batch are given below.</p> <table><tr><td></td><td colspan="4">Observed Time in Minutes</td></tr><tr><td>Task</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Molding</td><td>26</td><td>30</td><td>29</td><td>31</td></tr><tr><td>Packing</td><td>45</td><td>50</td><td>35</td><td>30</td></tr></table> <p>Determine the Normal and standard times for both tasks.</p>		Observed Time in Minutes				Task	1	2	3	4	Molding	26	30	29	31	Packing	45	50	35	30	CO2
	Observed Time in Minutes																					
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Rubrics: Assignment-1

Name:	Class:	Date of Grading:
Reviewer:	Period:	Grade Score:

Criteria	No Mistakes Found. (Everything is included)	*Minor Flaws (1-2 Mistakes Found)	*Major Flaws (3-4 Mistakes Found)	*Incomplete (5-6 Mistakes Found)	**Resubmission Needed (7 or more mistakes Found)
Concepts and Corrections	20	15	10	5	0
Problem Solving Strategies and Procedures	20	15	10	5	0
Representation and Accuracy	60	55-50	45-35	30-20	15-0

*Recommend fixing these problems. **These will require resubmission

Concepts and Corrections	Apply correct concepts for the given problems
Problem Solving Strategies and Procedures	Use right problems solving strategies and follow step by step procedures to solve each question
Representation and Accuracy	Communicate the answers in a way that is clear and concise.