	Universitas Negeri Surabaya **Faculty of Engineering** **, Electrical Engineering Education Undergraduate Study Program**	**Document Code**

SEMESTER LEARNING PLAN

Courses	**CODE**	**Course Family**	**Credit Weight**			**SEMESTER**	**Compilation Date**
Industrial Management	8320102054		**T=2**	**P=0**	**ECTS=3.18**	6	July 18, 2024

AUTHORIZATION	**SP Developer**	**Course Cluster Coordinator**	**Study Program Coordinator**
	....	....	Dr. Nur Kholis, S.T., M.T.

Learning model	**Case Studies**

Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix

	P.O

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Short Course Description	This course contains the understanding and scope of industrial management, product and process planning, demand forecasting, production planning, capacity planning, inventory planning, quality control tools, work network planning and production scheduling.

References	**Main :**	

1. Bernard W. Taylor. 2004. Introduction to Management Science. 8 edition. Prentice Hall. New Jersey.
2. Douglas C. Montgomery. 1990. Pengantar Pengendalian Kualitas Statistik. Gajah Mada University Press.
3. Eugene L. Grant dan Richard S. L. 1988. Pengendalian Mutu Statistik. Penerbit Erlangga. Jakarta.
4. Fogarty, Blackstone, Hoffman. 1991. Production and Inventory Management. South Western Publishing. Ohio.
5. Indriyo Gitosudarmo.1985. Sistem Perencanaan dan Pengendalian Produksi. BPFE Yogyakarta.
6. John E. Biegel. 1992. Pengendalian Produksi. Akademika Pressindo. Jakarta.
7. Mokhtar S. Bazaraa, John J. Jarvis, Hanif D. Dherali.1977. Linear Programing and Network. John Wileys & Sons.
8. Praptono M. A. 1985. Statistika Pengawasan Kualitas. Penerbit Karunika Jakarta. Universitas Terbuka.
9. Teguh Baroto. 2002. Perencanaan dan Pengendalian Produksi. Ghalia Indonesia. Jakarta.
10. T. Hani Handoko. 1984. Dasar-dasar Manajemen Produksi dan Operasi. BPFE Yogyakarta.

Supporters:

Supporting lecturer	Dr. Ir. Achmad Imam Agung, M.Pd.

Week-	**Final abilities of each learning stage (Sub-PO)**	**Evaluation**		**Help Learning, Learning methods, Student Assignments, [Estimated time]**		**Learning materials [References]**	**Assessment Weight (%)**
		Indicator	**Criteria & Form**	**Offline (offline)**	**Online (online)**		
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**

1	Students are able to explain their understanding of the meaning and scope of Industrial Management.	1. Explain the meaning of industry, production and industrial management. 2. Draw and explain the production management scope scheme. 3. Explain the scope of industrial management.		Lectures, discussions, exercises. 2 X 50			0%
2	Students are able to explain their understanding of product design and development.	1. Explain the role of research in product development 2. Draw and explain a product life cycle scheme 3. Draw and explain a new product development process scheme.		Lectures, discussions, exercises. 2 X 50			0%
3	Students are able to explain their understanding of production process design.	1. Explain and draw each type of production process. 2. Explain the characteristics of each production process. 3. Name and explain the factors that need to be considered in process selection.		Lectures, discussions, exercises. 2 X 50			0%
4	Students are able to predict product demand in the future	1. Explain qualitative forecasting techniques. 2. Explain quantitative forecasting techniques 3. Calculating future product demand		Lectures, discussions, exercises. 2 X 50			0%
5	Students are able to calculate forecasting errors	1. Write 3 (three) forecasting error formulas 2. Calculating forecasting error.		Lectures, discussions, exercises. 2 X 50			0%
6	Students are able to explain their understanding of production planning.	1. Explain aggregate planning 2. Calculating aggregate requirements 3. Explain the process of preparing the Master Production Schedule (JIP) 4. Prepare Master Production Schedule.		Lectures, discussions, exercises. 2 X 50			0%
7	Students are able to calculate optimal production quantities.	1. Explain the objective function 2. Explain the function of constraints 3. Calculate the optimal production amount		Lectures, discussions, exercises. 2 X 50			0%

8	Midterm Exam (UTS).	Students are able to solve questions related to industrial understanding, product development, production process planning, forecasting techniques, and aggregate planning.	**Criteria:** Compliance with the answer key.	Midterm Exam (UTS). 2 X 50			0%
9	Students are able to explain their understanding of capacity planning.	1. Explain the concept of capacity2. Calculating available capacity3. Calculating the required capacity4. Explain the steps taken in relation to the results of capacity calculations.		Lectures, discussions, exercises. 2 X 50			0%
10	Students are able to calculate the amount of economic inventory.	1. Explain ordering costs2. Explain storage costs3. Calculate the economic inventory amount.		Lectures, discussions, exercises. 2 X 50			0%
11	Students are able to draw variable control charts and explain their use.	1. Calculating control limits for control map X 2. Calculating control limits for control map R 3. Drawing control map X 4. Drawing control map R 5. Explaining the use of control map		Lectures, discussions, exercises. 2 X 50			0%
12	Students are able to draw attribute control maps and explain their use	1. Calculating control limits2. Draw an attribute control map.		Lectures, discussions, exercises. 2 X 50			0%
13	Students are able to explain their understanding of work networks.	1. Explain about work networks 2. Calculate the fastest event time and the late event time 3. Drawing a working network 4. Determining the critical path.		Lectures, discussions, exercises. 2 X 50			0%
14	Students can explain their understanding of how to sequence production operations.	1. Create a position matrix2. Determine the position weight 3. Determine the number of work stations 4. Grouping operations into workstations 5. Calculate the efficiency of each work station and average efficiency.		Lectures, discussions, exercises. 2 X 50			0%

15	Students can explain their understanding of work assignments for machines.	1. Determine the order of a number of jobs on 1 machine. 2. Determine the order of a number of jobs on 2 machines.		Lectures, discussions, exercises. 2 X 50			0%
16	Final Semester Examination (UAS)			2 X 50			0%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
		0%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.