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

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
INDUSTRIAL MANAGEMENT	2020102301	Compulsory Study Program Subjects	T=0	P=0	ECTS=0	1	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model	**Case Studies**
Program Learning Outcomes (PLO)	**PLO study program which is charged to the course**
PLO-10	Able to convey ideas and/or ideas resulting from work and innovation in the field of electrical engineering effectively, both orally and in writing
	Program Objectives (PO)
	PLO-PO Matrix

P.O	PLO-10

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. Roswina Dianawati, S.Pd., M.Ed.

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 industrial management. 2. Identify the scope of industrial management.	**Criteria:** Ability to clearly explain the meaning and scope of industrial management. **Form of Assessment** : Participatory Activities	Discussion lecture and question and answer Case study 2 X 50	Discussion lectures and case study questions and answers	**Material:** Introduction to industrial management: Definition, history and scope. **Bibliography:** *Bernard W. Taylor. 2004. Introduction to Management Science. 8 edition. Prentice Hall. New Jersey.*	5%
2	Students are able to explain their understanding of product design and development.	1. Explain the product design process. 2. Identify factors that influence product development.	**Criteria:** Ability to explain product development processes and factors. **Form of Assessment** : Participatory Activities	Discussion lecture and question and answer Case study 2 X 50	Discussion lectures and case study questions and answers	**Material:** Concepts of product design and development in industry. **Bibliography:** *Bernard W. Taylor. 2004. Introduction to Management Science. 8 edition. Prentice Hall. New Jersey.*	5%
3	Students are able to explain their understanding of production process design.	1. Explain the stages of designing the production process. 2. Identify tools and techniques in process design.	**Criteria:** Ability to explain production process design stages and tools.	Discussion lecture and question and answer Case study 2 X 50	Discussion lectures and case study questions and answers	**Material:** Production process design: Stages, tools and techniques. **Bibliography:** *Douglas C. Montgomery. 1990. Introduction to Statistical Quality Control. Gajah Mada University Press.*	5%
4	Students are able to predict product demand in the future	1. Develop a forecasting method. 2. Analyze data for forecasting.	**Criteria:** Ability to predict using appropriate methods. **Form of Assessment** : Participatory Activities, Tests	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Product demand forecasting methods. **Bibliography:** *Douglas C. Montgomery. 1990. Introduction to Statistical Quality Control. Gajah Mada University Press.*	5%
5	Students are able to calculate forecasting errors	1. Calculating forecasting errors with statistical methods. 2. Analyze the causes of forecasting errors.	**Criteria:** Accuracy in calculating forecasting errors. **Form of Assessment** : Participatory Activities, Tests	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Calculation and analysis of forecasting errors. **References:** *Eugene L. Grant and Richard SL 1988. Statistical Quality Control. Erlangga Publishers. Jakarta.*	5%

6	Students are able to explain their understanding of production planning.	1. Explain the concept of production planning. 2. Identify factors in production planning.	**Criteria:** Ability to explain and identify production planning factors. **Form of Assessment** : Participatory Activities	Discussion lecture and question and answer Case study 2 X 50	Discussion lectures and case study questions and answers	**Material:** Concepts and factors in production planning. **References:** *Fogarty, Blackstone, Hoffman. 1991. Production and Inventory Management. South Western Publishing. Ohio.*	5%
7	Students are able to calculate optimal production quantities.	1. Calculating optimal production quantities using mathematical models. 2. Analyze the factors that influence production quantities.	**Criteria:** Accuracy and understanding in calculating optimal production. **Form of Assessment** : Test	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Calculation of optimal production quantities. **References:** *Fogarty, Blackstone, Hoffman. 1991. Production and Inventory Management. South Western Publishing. Ohio.*	5%
8	Midterm Exam (UTS).		**Criteria:** Compliance with the answer key. **Form of Assessment** : Test	Midterm Exam (UTS). 2 X 50		**Material:** industrial understanding, product development, production process planning, forecasting techniques, and aggregate planning. **References:** *Fogarty, Blackstone, Hoffman. 1991. Production and Inventory Management. South Western Publishing. Ohio.*	15%
9	Students are able to explain their understanding of capacity planning.	1. Explain the concept of capacity planning. 2. Identify capacity planning methods.	**Criteria:** Ability to explain capacity planning concepts and methods. **Form of Assessment** : Participatory Activities	Discussion lecture and question and answer Case study 2 X 50	Discussion lectures and case study questions and answers	**Material:** Capacity planning in production management. **Bibliography:** *Indriyo Gitosudarmo. 1985. Production Planning and Control System. BPFE Yogyakarta.*	5%
10	Students are able to calculate the amount of economic inventory.	1. Calculate the economic inventory amount. 2. Analyze the factors that influence the amount of inventory.	**Form of Assessment** : Test	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Calculation and analysis of economic inventory amounts. **Bibliography:** *John E. Biegel. 1992. Production Control. Academic Pressindo. Jakarta.*	5%

11	Students are able to draw variable control charts and explain their use.	1. Draw variable control charts. 2. Explain the function and use of variable control charts.	**Form of Assessment** : Participatory Activities	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Variable control map in quality control. **Bibliography:** *John E. Biegel. 1992. Production Control. Academic Pressindo. Jakarta.*	5%
12	Students are able to draw variable control charts and explain their use.	1. Draw variable control charts. 2. Explain the function and use of variable control charts.	**Form of Assessment** : Participatory Activities	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Variable control map in quality control. **Bibliography:** *John E. Biegel. 1992. Production Control. Academic Pressindo. Jakarta.*	5%
13	Students are able to explain their understanding of work networks.	1. Explain the concept of a work network. 2. Identify tools and applications in the work network.	**Form of Assessment** : Test	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Concept and application of work networks in production management. **Bibliography:** *Mokhtar S. Bazaraa, John J. Jarvis, Hanif D. Dherali.1977. Linear Programming and Networks. John Wileys & Sons.*	5%
14	Students can explain their understanding of how to sequence production operations.	1. Explain the method of sequencing production operations. 2. Analyzing cases of sequencing operations.	**Criteria:** Ability to explain and analyze sequencing operations. **Form of Assessment** : Test	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Methods for sequencing production operations. **References:** *Praptono MA 1985. Quality Control Statistics. Karunika Publisher Jakarta. Open University.*	5%
15	Students can explain their understanding of work assignments for machines.	1. Explain the principles of work assignment for machines. 2. Analyze work assignment cases.	**Criteria:** Ability to explain and analyze work assignments. **Form of Assessment** : Participatory Activities, Tests	Lectures, discussions, exercises. 2 X 50	Lectures, discussions, exercises.	**Material:** Principles and analysis of work assignments for machines. **Reader:** *Teguh Baroto. 2002. Production Planning and Control. Ghalia Indonesia. Jakarta.*	5%

16	Final Semester Examination (UAS)		**Criteria:** Compliance with the answer key. **Form of Assessment** : Test	Final Semester Examination (UAS) 2 X 50		**Material:** Calculation and analysis of economic inventory quantities, sequencing of production operations. **Reference:** *T. Hani Handoko. 1984. Basics of Production and Operations Management. BPFE Yogyakarta.*	20%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	37.5%
2.	Test	62.5%
		100%

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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.