	Universitas Negeri Surabaya Faculty of Engineering, Bachelor of Information Systems Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Decision Support Systems for Business	5720103054		T=3	P=0	ECTS=4.77	6	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	I Kadek Dwi Nuryana, S.T., M.Kom.

Learning model	**Project Based Learning**
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 discusses the characteristics of complex business problems, data components and models, adaptive business intelligence, development of intelligence and decision support systems through several models and prediction methods, modern optimization techniques, fuzzy logic, Artificial Neural Networks, hybrid systems and adaptability, application Adaptive Business Intelligence (BI), how to design decision support systems, as well as implementing and evaluating decision support systems for BI.
References	**Main :**

1. Michalewicz, Z., Schmidt, M., Michalewicz, M., Chiriac, C. 2007. Adaptive Business Intelligence . Springer-Verlag Berlin Heidelberg.
2. Sauter, Vicki L. 2010. Decision Support Systems for Business Intelligence . John Wiley & Sons, Inc.
3. Turban, Efraim., Sharda, Ramesh., Delen, Dursun., and King, David. 2010. Business Intelligence: A Managerial Approach, 2nd Edition . Pearson Prentice Hall, Inc.

	Supporters:
Supporting lecturer	Dedy Rahman Prehanto, S.Kom., M.Kom. Ardhini Warih Utami, S.Kom., M.Kom. Ghea Sekar Palupi, S.Kom., M.I.M.

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 understand the characteristics of complex business problems.	1. Explain the number of possible business solutions; 2. Explain the changing business environment over time; 3. Explains the limitations of specific business problems; 4. Explain multi-objective business problems.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
2	Students are able to understand the concept of Decision Support Systems.	1. Explain the definition and use of Decision Support Systems; 2. Explain how to make rational decisions; 3. Explain business intelligence and decision making; 4. Explain competitive business intelligence.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
3	Students are able to understand the concept of data components.	1. Explain the characteristics of information; 2. Explain the concept of databases; 3. Explain the concept of database management systems; 4. Explain the concept of data warehouses.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
4	Students are able to understand the concept of model components.	1. Explains models and analytics; 2. Explains options for modeling; 3. Explain the problems in modeling; 4. Describes intelligent agents; 5. Explain model-based management systems.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%

5	Students are able to understand the concept of adaptive business intelligence.	1. Explain the concept of data mining; 2. Explain the concept of prediction; 3. Explain the concept of optimization; 4. Explain the concept of adaptability; 5. Explain the structure of an adaptive business intelligence system.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
6	Students are able to apply the concept of Intelligence and Decision Support Systems.	1. Applying the concept of programming reasoning; 2. Applying the concept of uncertainty.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
7	Students are able to apply prediction models and methods.	1. Implement data preparation processes; 2. Apply data prediction methods; 3. Implement a model evaluation process.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
8	Sub-Summative Exam / Midterm Exam	Sub-Summative Exam / Midterm Exam		Written and/or Practical Exam 3 X 50			0%
9	Students are able to apply modern optimization techniques.	1. Applying the concept of local optimization techniques; 2. Implementing stochastic hill climber; 3. Applying simulated annealing; 4. Implement tabu search; 5. Applying the concept of constraint handling.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%

10	Students are able to apply the concept of Fuzzy logic.	1. Implementing a Fuzzifier; 2. Implementing an Inference System; 3. Implementing Defuzzifier; 4. Applying the tuning process to membership functions and rule base.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
11	Students are able to apply the Artificial Neural Network method.	1. Implementing input nodes and output nodes in Artificial Neural Networks; 2. Implementing several different network types in Artificial Neural Network applications; 3. Applying several training methods to Artificial Neural Networks.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
12	Students are able to apply hybrid systems and adaptability.	1. Applying hybrid systems for prediction; 2. Implementing hybrid systems for optimization. 3. Applying the concept of adaptability.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
13	Students are able to apply Adaptive Business Intelligence.	1. Explain the application of Adaptive Business Intelligence in marketing campaigns; 2. Explain the application of Adaptive Business Intelligence in manufacturing; 3. Explain the application of Adaptive Business Intelligence in investment strategies; 4. Explain the application of Adaptive Business Intelligence in Credit Card fraud; 5. Applying Adaptive Business Intelligence in everyday life.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
14	Students are able to design Decision Support Systems.	1. Planning the Decision Support System design; 2. Designing Decision Support Systems and re-engineering.		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%

15	Students are able to apply the process of implementing and evaluating Decision Support Systems.	1. Applying Decision Support System implementation strategies; 2. Implementing the implementation and evaluation stages of the Decision Support System		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
16	Summative Exam / Final Semester Exam	Summative Exam / Final Semester Exam		Written and/or Practical Exam 3 X 50			0%

Evaluation Percentage Recap: Project Based Learning

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.