	Universitas Negeri Surabaya **Vocational Faculty,** **D4 Informatics Management Study Program**	**Document Code**

	SEMESTER LEARNING PLAN				

Courses		**CODE**		**Course Family**		**Credit Weight**			**SEMESTER**	**Compilation Date**
Operating system		99995740102149				**T=2**	**P=0**	**ECTS=3.18**	2	July 17, 2024

AUTHORIZATION	**SP Developer**	**Course Cluster Coordinator**	**Study Program Coordinator**
	....	....	Dodik Arwin Dermawan, S.ST., S.T., M.T.

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 studies the application of process and thread management, memory management, storage management, as well as demonstrating the process of implementing these materials in a simple way in several operating systems.

References	**Main :**
	1. Tanenbaum, S. & Bos, Herbert. 2008. Modern Operating System, Fourth Edition. New Jersey: Pearson Prentice-Hall. 2. Silberschatz, A, et.al. 2013. Operating System Concepts, Ninth Edition. New Jersey: John Wiley & Sons. 3. Love, Robert. 2007. Linux System Programming. California: O 19Reilly Media. 4. Liu, Yukun, et.al. 2011. UNIX Operating System: The Development Tutorial via UNIX Kernel Services. New York: Springer.
	Supporters:

Supporting lecturer	Asmunin, S.Kom., M.Kom. Dodik Arwin Dermawan, S.ST., S.T., M.T. Ronggo Alit, M.M., M.T.

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 identify the concept of operating systems. Students understand the role and function of operating systems.	1. Students explain the definition of an operating system. 2. Students mention the position of the operating system in the computer organization system. 3. Students explain the role of the operating system. 4. Students mention the functions of the operating system.	**Criteria:** Holistic Rubric	Approach: Scientific Model: Cooperative Method: Lecture, Discussion, Presentation 4 X 50			0%
2	Students understand the use of operating systems well.	1. Students understand the various interfaces in operating systems. 2. Students demonstrate operating systems through several types of interfaces.	**Criteria:** Holistic Rubric	Model: Discovery Learning Method: Lecture, Question and Answer, Discussion 2 X 50			0%
3	Students understand the concept of system calls in operating systems. Students understand the structure of operating systems.	1. Students explain the concept of system calls in operating systems well. 2. Students mention the structure of an operating system.	**Criteria:** Holistic Rubric	Model: Discovery Learning Method: Lecture, Question and Answer, Discussion 2 X 50			0%
4	Students understand the concept of system calls in operating systems. Students understand the structure of operating systems.	1. Students explain the concept of system calls in operating systems well. 2. Students mention the structure of an operating system.	**Criteria:** Holistic Rubric	Model: Discovery Learning Method: Lecture, Question and Answer, Discussion 2 X 50			0%
5	Students evaluate processes in operating systems in general. Students understand process management in operating systems.	1. Students mention the concept of process. 2. Students explain operations in the process. 3. Students explain the scheduling process. 4. Students synthesize and stop the process 5. Students demonstrate the fork() process	**Criteria:** Holistic Rubric	Model: Problem Based Learning Method: Lecture, Question and Answer, Discussion 2 X 50			0%

6	Students evaluate processes in operating systems in general. Students understand process management in operating systems.	1. Students mention the concept of process. 2. Students explain operations in the process. 3. Students explain the scheduling process. 4. Students synthesize and stop the process 5. Students demonstrate the fork() process	**Criteria:** Holistic Rubric	Model: Problem Based Learning Method: Lecture, Question and Answer, Discussion 2 X 50			0%
7	Students briefly evaluate threads in the operating system	1. Students mention the concept of threads. 2. Students mention the use of threads. 3. Students show threads in User Space in general. 4. Students show threads in Kernel Space in general.	**Criteria:** Holistic Rubric	Model: Discovery learning Method: Lecture, discussion and presentation 4 X 50			0%
8	Sub-Summative Exam			2 X 50			0%
9	Students are able to apply memory management	1. Students apply memory management functions 2. Students apply memory classification 3. Students apply static and dynamic partitioning strategy methods 4. Students are able to apply developments in memory technology	**Criteria:** Holistic Rubric	Presentations, discussions, questions and answers and assignments 2 X 50			0%
10	Students are able to apply I/O device management	1. Students are able to apply several classifications of I/O devices 2. Students are able to apply interconnections between I/O 3. Students apply various I/O management techniques 4. Students apply various I/O algorithms 5. Students apply technological developments I/O devices.	**Criteria:** Holistic Rubric	Presentations, discussions, questions and answers and assignments 2 X 50			0%

11	Students are able to apply the file management process	1. Students are able to apply problems related to files 2. Students are able to differentiate between types of files 3. Students are able to apply how to protect files 4. Students are able to apply how to share files 5. Students are able to apply directory structures in Windows and Linux 6. Students can apply various types -kinds of file locking	**Criteria:** Holistic Rubric	Presentations, discussions, questions and answers and assignments 2 X 50			0%
12	Students are able to apply storage media processes	1. Students explain the development of storage technology 2. Students are able to explain disk structure 3. Students apply HAS technology 4. Students apply NAS technology 5. Students apply RAID technology	**Criteria:** Holistic Rubric	Presentations, discussions, questions and answers and assignments 2 X 50			0%
13	Students are able to apply security systems to operating systems	1. Students apply 3 aspects of security 2. Students apply network security models 3. Students apply cryptography and steganography 4. Students apply various viruses and their variants.	**Criteria:** Holistic Rubric	Presentations, discussions, questions and answers and assignments 2 X 50			0%
14	Students are able to apply virtualization technology	1. Students explain the definition of virtualization 2. Students explain the difference between physical vs virtual architecture 3. Students explain the relationship between Virtual Machine Host OS and Guest OS 4. Students apply the use of VirtualBox 5. Students apply the use of VmWare Workstation	**Criteria:** Holistic Rubric	Presentations, discussions, questions and answers and assignments 2 X 50			0%

| 15 | Students are able to apply virtualization technology | 1. Students explain the definition of virtualization 2. Students explain the difference between physical vs virtual architecture 3. Students explain the relationship between Virtual Machine Host OS and Guest OS 4. Students apply the use of VirtualBox 5. Students apply the use of VmWare Workstation | **Criteria:**
Holistic Rubric | Presentations, discussions, questions and answers and assignments
2 X 50 | | | 0% |
| 16 | Summative Exam / Final Semester Exam | Summative Exam / Final Semester Exam | **Criteria:**
Summative Exam / Final Semester Exam | Summative Exam / Final Exam Semester
2 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.