



Universitas Negeri Surabaya
Faculty of Engineering,
Undergraduate Study Program in Informatics Engineering

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date		
Network Security and Cryptography	5520203030		T=3 P=0 ECTS=4.77	7	July 17, 2024		
AUTHORIZATION	SP Developer		Course Cluster Coordinator	Study Program Coordinator			
	Aditya Prapanca, 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					
Short Course Description	This course studies Introduction to Network Security, Types of Attacks, Hacking Techniques, information security, internet security, Basic and Advanced Firewalls, IDS, VPN, Ecommerce, Basic Cryptography, Cryptographic Algorithms, Steganography and Network Security Projects						
References	Main :						
	1. Eric Maiwald. 2001. Network Security A Beginners Guide . United States: The McGraw-Hill Companies 2. Rinaldi Munir. 2006. Kriptografi . Informatika Bandung						
	Supporters:						
Supporting lecturer	Asmunin, S.Kom., M.Kom.						
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	Understand the Basics of Network Security	<ol style="list-style-type: none"> 1. Know the History of Network Security 2. Knowing Network Security Issues 3. Knowing the difference between process vs product security 		Lectures and discussions 3 X 50			0%
2	Students know the types of attacks on networks	<ol style="list-style-type: none"> 1. Knowing Access attach 2. Knowing Modification attach 3. Knowing Denial of service attached 4. Knowing Repudiation attach 		Lectures and discussions 3 X 50			0%
3	Know the basics of hacking techniques	<ol style="list-style-type: none"> 1. Know the stages of Reconnaissance 2. Know the stages of scanning 3. Know the stages of Gain Access 4. Know the stages of Maintain Access 5. Know the stages of Covering track 	Form of Assessment : Participatory Activities	Lectures and discussions 3 X 50			20%
4	Know the concept of information security	<ol style="list-style-type: none"> 1. Know the concept of Confidentiality 2. Know the concept of Integrity 3. Know the concept of Authentication 4. Know the concept of Availability 5. Know the concept of Accountability 6. Know the concept of Non Repudiation 		Lectures and discussions 3 X 50			0%

5	Know the use of Internet Security	<ol style="list-style-type: none"> 1. Know the use of Mail and Web Security 2. Know the use of Internal Security for access to the internet 3. Know the use of external to internal access security 4. Understand the use of the Security Control service 5. Know the use of Single line access Security 6. Knowing the use of Multi line access to Single line access Security 7. Knowing the use of Multi line access to Multi line access Security 		Lectures and discussions 3 X 50			0%
6	Know how to use Firewall Basic	<ol style="list-style-type: none"> 1. Know the firewall type 2. Know the use of Firewall filters 3. Know the use of NAT Firewall 	Form of Assessment : Participatory Activities	Lectures and discussions 3 X 50			20%
7	Know how to use Firewall Advance	<ol style="list-style-type: none"> 1. Know the use of the mangle concept 2. Know the use of connection marks 3. Know the use of Packet marks 4. Know the use of Route marks 		Lectures and discussions 3 X 50			0%
8	UTS			3 X 50			0%
9	Know the use of IDS	<ol style="list-style-type: none"> 1. Know the use of Host base IDS 2. Know the use of Network base IDS 3. Knowing IDS Products 		Lectures and discussions 3 X 50			0%
10	Know VPN technology	<ol style="list-style-type: none"> 1. Know VPN technology 2. Know the advantages of using VPN 3. Know the VPN Type 4. Know Examples of VPNs 	Form of Assessment : Participatory Activities	Lectures and discussions 3 X 50			20%

11	Understand the use of E-commerce	<ol style="list-style-type: none"> 1. Know the concept of E-commerce service 2. Know the concept of Availability 3. Know the concept of Client side security 4. Know the concept of Server side security 5. Know the use of Application security 6. Know the use of Database security 7. Know the E-commerce architecture 		Lectures and discussions 3 X 50			0%
12	Know the Basics of Cryptography	<ol style="list-style-type: none"> 1. Know the history of cryptography 2. Know the meaning of cryptography 3. Know the components of cryptography 4. Know the types of cryptography 	Form of Assessment : Participatory Activities	Lectures and discussions 3 X 50			20%
13	Know the use of Cryptographic Algorithms	<ol style="list-style-type: none"> 1. Know the use of the Substitution algorithm 2. Know the use of the Tranposition algorithm 3. Know the use of classical cryptographic algorithms 4. Know the use of modern Cryptographic algorithms 		Lectures and discussions 3 X 50			0%
14	Know Steganography security techniques	<ol style="list-style-type: none"> 1. Know the history of steganography and watermarking 2. Know steganography techniques 3. Know watermarking techniques 4. Know examples of the use of steganography 	Form of Assessment : Project Results Assessment / Product Assessment	Lectures and discussions 3 X 50			20%
15	Able to create Network Security projects	<ol style="list-style-type: none"> 1. Able to create a firewall project 2. Able to create a VPN Project 3. Able to create an IDS Project 4. Able to create cryptographic projects 5. Able to create steganography projects 		Lectures and discussions 3 X 50			0%
16							0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	80%
2.	Project Results Assessment / Product Assessment	20%
		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** 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.