| | Universitas Negeri Surabaya<br>Faculty of Engineering,<br>Undergraduate Study Program in Informatics Engineering | Document Code |
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## SEMESTER LEARNING PLAN

| Courses | | CODE | Course Family | Credit Weight | | | SEMESTER | Compilation Date |
|---|---|---|---|---|---|---|---|---|
| Computer network | | 5520204025 | | T=4 | P=0 | ECTS=6.36 | 3 | July 17, 2024 |
| AUTHORIZATION | | SP Developer | | Course Cluster Coordinator | | | Study Program Coordinator | |
| | | ...................................... | | ...................................... | | | Aditya Prapanca, S.T., M.Kom. | |

| Learning model | Project Based Learning |
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| Program Learning Outcomes (PLO) | PLO study program that is charged to the course | |
|---|---|---|
| | PLO-7 | Ability to design, implement, and evaluate multi-platform computing-based solutions that meet organizational needs (COM-02) |
| | Program Objectives (PO) | |
| | PO - 1 | Students are able to understand the concepts and framework of information systems project management |
| | PO - 2 | Students are able to initialize, plan, execute, control and close projects |
| | PLO-PO Matrix | |

| P.O | PLO-7 |
|---|---|
| PO-1 | |
| PO-2 | |

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 |
| PO-1 | | | | | | | | | | | | | | | | |
| PO-2 | | | | | | | | | | | | | | | | |

| Short Course Description | This course teaches about interaction between humans and computers, about the development of human-computer interaction, creating good interfaces in making programs, future trends in human-computer interaction. |
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| References | Main : | |
|---|---|---|
| | 1. Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.<br>2. Newman, W. M and Lamming, M. G, Interactive System Design, Addison Wesley, Cambrigde, Great Britain, 1995.<br>3. P. Insap Santoso, Interaksi Manusia dan Komputer : Teori dan Praktek, Andi Offset, Yogyakarta, 2004.<br>4. Raskin, J, The Human Interface, Addison Wesley, 2000<br>5. Shneiderman, B, Designing The User Interface, 3rd Edition, Addison Wesley, 1998<br>6. Sutcliffe, A. G., HUMAN-COMPUTER INTERFACE DESIGN, 2ND Edition, MacMillan, London, 1995. | |
| | Supporters: | |
| | | |

| Supporting lecturer | Agus Prihanto, S.T., M.Kom. |
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| Week- | Final abilities of each learning | Evaluation | | Help Learning,<br>Learning methods,<br>Student Assignments,<br>[ Estimated time] | Learning materials<br>[ References ] | Assessment Weight (%) |
|---|---|---|---|---|---|---|

| | stage (Sub-PO) | Indicator | Criteria & Form | Offline ( offline ) | Online ( online ) | | |
|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1 | Understand the concept of computer networks | 1. Explain the basic concepts of computer networks including: interconnection, types of computer networks and topology in computer networks in networks | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 2 X 50 | | **Material:** basic concepts of Computer Networks **References:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 0% |
| 2 | Understand the concept of computer network architecture and protocols. | 1. Explain the concept of Computer Network Architecture 2. Explain the meaning of protocol 3. Explain the role of protocol in network communication 4. Distinguish between the OSI layer and TCP/IP models. | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 2 X 50 | | **Material:** Computer Network Architecture concepts **References:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 0% |
| 3 | Understand the Physical layer and components that make up a computer network | 1. Distinguish between the physical components of a computer network. 2. Apply physical topology and cabling in a computer network. 3. Measure computer network performance | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values **Form of Assessment** : Participatory Activities | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 2 X 50 | | **Material:** physical components of Computer Networks **References:** *Newman, W. M and Lamming, M. G, Interactive System Design, Addison Wesley, Cambridge, Great Britain, 1995.* | 20% |
| 4 | Understand the concepts and working mechanisms of the main Data Link and Transport Layer protocols | 1. Understand the role of protocols in the Data Link Layer 2. Distinguish between TCP and UDP protocols 3. Briefly describe how TCP and UDP work | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 1 X 50 | | **Material:** Link Layer Data **References:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 0% |
| 5 | Understand the concept and structure of IPv4 addresses | 1. Explain the classes in IPv4 addresses 2. Be able to convert IPv4 addresses from decimal to binary and vice versa 3. Apply addressing on the network using IPV4 | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values **Form of Assessment** : Participatory Activities | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 4 X 50 | | **Material:** classes in IPv4 addresses **References:** *Newman, W. M and Lamming, M. G, Interactive System Design, Addison Wesley, Cambridge, Great Britain, 1995.* | 5% |
| 6 | Understand the concept and structure of IPv4 addresses | 1. Explain the classes in IPv4 addresses 2. Be able to convert IPv4 addresses from decimal to binary and vice versa 3. Apply addressing on the network using IPV4 | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values **Form of Assessment** : Participatory Activities | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 4 X 50 | | **Material:** classes in IPv4 addresses **References:** *Newman, W. M and Lamming, M. G, Interactive System Design, Addison Wesley, Cambridge, Great Britain, 1995.* | 20% |

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| 7 | Understand the sub-network addressing process | 1. Explain the principles of subnetting 2. Have subnetting skills | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 2 X 50 | | **Material:** subnetting **Bibliography:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 0% |
| 8 | | | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | 3 X 50 | | | 0% |
| 9 | Understand the routing process | 1. Explain the principles of routing 2. Have routing skills | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values **Form of Assessment** : Participatory Activities | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 4 X 50 | | **Material:** routing **Bibliography:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 15% |
| 10 | | routing | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | | | **Material:** routing **Bibliography:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 0% |
| 11 | Understand the concepts and working mechanisms of the TCP/IP application layer | 1. Explain the concept of network application architecture 2. Briefly describe how HTTP, DNS, DHCP, and FTP work | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 2 X 50 | | **Material:** network application architecture concepts **References:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 0% |
| 12 | Able to apply Application Layer configuration | 1. Apply DHCP configuration to the network 2. Apply HTTP configuration to the network 3. Implement FTP and file sharing configuration to the network. | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 4 X 50 | | **Material:** DHCP **Bibliography:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 0% |
| 13 | Able to apply Application Layer configuration | 1. Apply DHCP configuration to the network 2. Apply HTTP configuration to the network 3. Implement FTP and file sharing configuration to the network. | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values **Form of Assessment** : Participatory Activities, Practical Assessment | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 4 X 50 | | **Material:** DHCP **Bibliography:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 20% |
| 14 | Understand network applications on Linux and Windows Operating Systems | 1. Explain network features on Linux and Windows operating systems 2. Apply network features on Linux and Windows operating systems | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values **Form of Assessment** : Project Results Assessment / Product Assessment | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 2 X 50 | | **Material:** Linux and Windows operating systems **References:** *Dix, Alan et.al, HUMAN-COMPUTER INTERACTION, 2nd Edition, Prentice Hall, Europe, 1998.* | 20% |

| 15 | Understand the basic concepts of wireless networks and network security | 1. Explain the working principles of WiFi 2. Explain the working principles of Bluetooth 3. Explain the concept of network security. | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | Approach: Scientific Model: Cooperative Method: Discussion, Presentation 2 X 50 | | **Material:** WiFi working principles **Reader:** *Shneiderman, B, Designing The User Interface, 3rd Edition, Addison Wesley, 1998* | 0% |
|----|----|----|----|----|----|----|----|
| 16 | | | **Criteria:** Cognitive Values, Character Values, and Psychomotor Values | | | | 0% |

**Evaluation Percentage Recap: Project Based Learning**

| No | Evaluation | Percentage |
|----|------------|------------|
| 1. | Participatory Activities | 70% |
| 2. | Project Results Assessment / Product Assessment | 20% |
| 3. | Practical Assessment | 10% |
| | | 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.