Advanced Theory of Electrical Communication

2 units (selection)

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Target⟩ Understanding analysing techniques of the communication system and multi-nodes networks.

Outline⟩ This lecture is concerned with the study of concept of computer networks which realize the multi-node communication. The contents of those articles related with computer networks are presented at seminars. (Lecture style)

Style⟩ Lecture

Keyword⟩ *digital communication, computer networks, network architecture*

Fundamental Lecture⟩ "**Communication Systems**"(1.0), "**Applied Communication Engineering**"(1.0), "**Computer Networks**"(1.0)

Requirement⟩ Students are required to have a good understanding of undergraduate-level communication engineering and related subjects.

Goal⟩

1. Understanding the control techniques and implementation of computer network application. (Week 1-8, 11-15)
2. Understanding the secure techniques of the communication system. (Week 9-16)

Schedule⟩

1. Overview of digital communication
2. Mathematical preparation
3. Network architecture
4. Physical layer in fixed and wireless networks
5. Datalink layer in fixed and wireless networks
6. Network layer and routing
7. Transport layer
8. Traffic control
9. Security in fixed and wireless networks
10. Synmetric cryptography and public key cryptography
11. Session layer
12. Presentation layer
13. Application layer
14. Implementation example of application layer (HTTP, SMTP)
15. Implementation example of application layer (DNS, SNMP)
16. Wireless networks

Evaluation Criteria⟩ Evaluated by presentations and submitted materials in seminars.

Textbook⟩ To be introduced in the class.

Contents⟩ http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216771

Student⟩ Able to be taken by only specified class(es)

Contact⟩

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Note⟩ Taking this class, it is necessary to do 2 hours preparation and 2 hours reviewing for every class (2 hours) in order for your understanding and taking credit.