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|--|-------------|---|---|--|--------------|--|--|--|--|
| Tsuyama College  |             | Year  | 2020  |  | Course Title | Communications Protocol  |  |  |  |
| Course Information   |             |   |   |  |              |  |  |  |  |
| Course Code  |             | 0140  |   | Course Category  |              | Specialized / Elective   |  |  |  |
| Class Format   |             | Lecture   |   | Credits  |              | Academic Credit: 2   |  |  |  |
| Department   |             | Department of Integrated Science and Technology Electrical and Electronic Systems Program   |   | Student Grade  |              | 5th  |  |  |  |
| Term   |             | Year-round  |   | Classes per Week   |              | 1  |  |  |  |
| Textbook and/or Teaching Materials   |             | Textbook: 井上直也他「マスタリングTCP/IP—入門編—（第6版）」(Ohmsha), Reference book: W.リチャード スティーブンス「詳解TCP/IP〈Vol.1〉プロトコル」(Pearson education)   |   |  |              |  |  |  |  |
| Instructor   |             | SORI Hitoshi,OKADA Tadashi  |   |  |              |  |  |  |  |
| Course Objectives  |             |   |   |  |              |  |  |  |  |
| Learning purposes:<br>Learn about the typical communications protocols used in the real world by reading rigorous technical documents from the textbook and understanding the systemic behaviors of the protocols. |             |   |   |  |              |  |  |  |  |
| Course objectives:<br>1. To be able to imagine the systemic behavior belonging to the typical communications protocols.<br>2. To gain experience understanding rigorous technical writings.                        |             |   |   |  |              |  |  |  |  |
| Rubric   |             |   |   |  |              |  |  |  |  |
|  |             | Excellent   |   | Good   |              | Acceptable   |  | Not acceptable   |  |
| Achievement 1  |             | The student can imagine the systemic behavior of all protocols taught.  |   | The student can imagine the systemic behavior of a sufficient number of protocols. |              | The student can imagine the systemic behavior of a minimum number of the protocols.    |  | The student cannot imagine the systemic behavior of a minimum number of the protocols. |  |
| Achievement 2  |             | The student understands most textbook content.  |   | The student understands a sufficient amount of the content in the textbook.        |              | The student understands a minimum amount of the content in the textbook.               |  | The student does not understand even a minimum amount of the textbook content.         |  |
| Assigned Department Objectives   |             |   |   |  |              |  |  |  |  |
| Teaching Method  |             |   |   |  |              |  |  |  |  |
| Outline  |             | General or Specialized: Specialized<br>Field of learning: Information systems, Programming, and Networks<br>Required, Elective, etc.: Elective must complete subjects on network programming course.<br>Foundational academic disciplines: Informatics / Information science, Information engineering, and related fields<br>Relationship with Educational Objectives: This class is equivalent to "(3) acquire deep foundation knowledge of the major subject area".<br>Relationship with JABEE programs: the main goal of learning /education in this class is "(A)."<br><br>Course outline:<br>Learn about the typical communications protocols in the real world by reading rigorous technical writing in the textbook and understanding these systemic behaviors of the protocols.   |   |  |              |  |  |  |  |
| Style  |             | Course method:<br>In this class, students' comprehension is evaluated by the quality of their presentations and ability to answer questions.<br><br>Grade evaluation method:<br>Exam(60%) + presentation (20%) + reports(20%)<br>Exams is conducted 4times and it is equally evaluated.<br>Exam precautions are the following:<br>* No student materials allowed,<br>* Re-exams will be conducted if necessary.   |   |  |              |  |  |  |  |
| Notice   |             | Precautions on the enrollment:<br>This class is "Required outside of teaching hours course study." Therefore, this course consists of 15 unit-hours of teaching and fifteen unit-hours of homework per one-unit. The student should deal with the homework based on guidance of the teacher.<br><br>Course advice:<br>In recent years, students seem to have less literacy regarding technical documents. However, this ability is essential to keeping a job in the ever-changing business world after graduation. The documents on communications protocols are a fit subject to exercise this ability.<br><br>Foundational subjects: Basic Information Networks (2nd year), Advanced Information Networks (4th), Communication Engineering (4th)<br>Related subjects: Information System Analysis (5th year)<br><br>Attendance advice: If you are late up half of one period, you are treated as late for the class. If you are more than half of one period late, you will be treated as absent.<br><br>Liaison faculty: Hitoshi SORI, Communication and Information System Program |   |  |              |  |  |  |  |
| Course Plan  |             |   |   |  |              |  |  |  |  |
|  |             |   | Theme   |  |              | Goals  |  |  |  |
| 1st Semester   | 1st Quarter | 1st   | Guidance  |  |              | The student can explain the educational objectives                                     |  |  |  |
|  |             | 2nd   | Foundational knowledge of the network, 1st week [Background of the computer network emergence / 7 levels for the development of computer and network] |  |              | The student can explain the background of computer network emergence and the protocol. |  |  |  |

|              |             |      |  |   |
|--------------|-------------|------|--|---|
| 2nd Semester |             | 3rd  | Foundational knowledge of the network, 2nd week [Layering of protocols, Communication method, Elements of the network / Who protocol define?]              | The student can explain the layering of protocols, communication method, and the elements of the network. |
|              |             | 4th  | Foundational knowledge of TCP/IP, 1st week [the background and history of TCP/IP / TCP/IP standardization / Foundational knowledge of Internet]            | The student can explain the background and standardization of TCP/IP.                                     |
|              |             | 5th  | Foundational knowledge of TCP/IP, 2nd week [hierarchical model of TCP/IP protocols / TCP/IP hierarchical model / An communication example of TCP/IP model] | The student can explain the hierarchical model and communication example of TCP/IP.                       |
|              |             | 6th  | Data link layer, 1st week [The role and technologies on the data link layer / About wireless communication / About Ethernet]                               | The student can explain the role and technologies of the data link layer, and wireless communication.     |
|              |             | 7th  | Data link layer, 2nd week [About PPP / About other data link protocols]  | The student can explain the PPP and other protocols on the data link layer.                               |
|              |             | 8th  | (1st-semester mid-term exam)   |   |
|              | 2nd Quarter | 9th  | Return and commentary of exam answers.   | Confirm the comprehension from the beginning to the mid-term exam.  |
|              |             | 10th | IP protocol, 1st week [About the protocol on Internet layer / IP address and routing control / Foundational knowledge of IP]                               | The student can explain the foundation of IP, IP address, and routing control.                            |
|              |             | 11th | IP protocol, 2nd week [About the partitioning/reconfiguring of IP / About the header of IPv4 and IPv6]   | The student can explain the partitioning/reconfiguring of IP and IPv4/IPv6.                               |
|              |             | 12th | Technologies related to IP, 1st week [About DNS / About ARP]   | The student can explain DNS and ARP protocol related to IP.   |
|              |             | 13th | Technologies related to IP, 2nd week [About ICMP / About DHCP]   | The student can explain ICMP and DHCP protocol related to IP.   |
|              |             | 14th | TCP and UDP [The role of the transport layer / TCP and UDP]  | The student can explain the role and difference of TCP and UDP.   |
|              |             | 15th | (1st-semester final exam)  |   |
|              |             | 16th | Return and commentary of exam answers  | Confirm the comprehension of this class.  |
| 2nd Semester | 3rd Quarter | 1st  |  |   |
|              |             | 2nd  |  |   |
|              |             | 3rd  |  |   |
|              |             | 4th  |  |   |
|              |             | 5th  |  |   |
|              |             | 6th  |  |   |
|              |             | 7th  |  |   |
|              |             | 8th  |  |   |
|              | 4th Quarter | 9th  |  |   |
|              |             | 10th |  |   |
|              |             | 11th |  |   |
|              |             | 12th |  |   |
|              |             | 13th |  |   |
|              |             | 14th |  |   |
|              |             | 15th |  |   |
|              |             | 16th |  |   |

#### Evaluation Method and Weight (%)

|                         | Examination | Presentation | Mutual Evaluations between students | Behavior | Portfolio | Other | Total |
|-------------------------|-------------|--------------|-------------------------------------|----------|-----------|-------|-------|
| Subtotal                | 60          | 20           | 0                                   | 0        | 20        | 0     | 100   |
| Basic Proficiency       | 0           | 0            | 0                                   | 0        | 0         | 0     | 0     |
| Specialized Proficiency | 60          | 20           | 0                                   | 0        | 20        | 0     | 100   |
| Cross Area Proficiency  | 0           | 0            | 0                                   | 0        | 0         | 0     | 0     |