
CPE 314 – Computer Networks (2/63)

General Information

<i>Instructors</i>	Assoc.Prof. Peerapon Siripongwutikorn, Ph.D. (Before midterm) FB inbox: Peerapon Siripong, Email: peerapon.sir@mail.kmutt.ac.th Zoom id: 630 3630 0075, Passcode: cpe314netw Assoc.Prof. Thumrongrat Amornraksa, Ph.D. (After midterm) FB inbox: Thumrongrat Amornraksa, Email: t_amornraksa@cpe.kmutt.ac.th Zoom id: 961 2669 4217, Passcode: 17QRiy
<i>TAs</i>	Thanathip Sunate Thanin Srichai
<i>On-line meeting</i>	via Zoom (Use id and passcode above) Sections 1,2,3 on Thu. 8.30-12.00 Sections 31,32 on Wed. 8.30-12.00
<i>On-site meeting (if permitted)</i>	Rooms 1120, 1121 Sections 1,2,3 on Thu. Sections 31,32 on Wed.
<i>Credit hours</i>	3 (2-2-6)
<i>Prerequisite</i>	None

This course is required for all 3rd-year Computer Engineering students.

Course Description

This course introduces fundamental concepts, protocols, and technologies in TCP/IP networks. Topics covered include network architectures, socket programming, application layer protocols, TCP, UDP, network layer protocols, routing algorithms and protocols, TCP/IP protocol suite, data link control, multiple access, Ethernet, virtual LAN, wireless LAN, and multimedia networking.

Materials

<i>Main Text</i>	B.A. Forouzan and F. Mosharraf, <i>Computer Networks: A Top Down Approach</i> , McGraw-Hill, 2012
<i>Supplemental Texts</i>	J.F. Kurose and K.W. Ross, <i>Computer Networking, A Top-Down Approach</i> , 6th Edition, Addison-Wesley, 2012. D. Peterson and B. Davie, <i>Computer Networks, A systems approach</i> , 5th Edition, 2011. W. Stallings, <i>Data and Computer Communications</i> , 10th Edition, Pearson Education, 2013.

Announcements, handouts, and assignments are posted in Google classroom (<http://classroom.google.com>, class code rwxqggp). Regularly check for updates.

Learning Outcomes

On completion of the subject, students should be able to:

- ▷ Explain or recognize meanings, concepts, characteristics, functions and rationales of key network protocols in TCP/IP networks.
- ▷ Design and implement a nontrivial network application.
- ▷ Design and analyze a simple small-scale network based on engineering justifications on the choices of network devices, topology, and related protocols.
- ▷ Configure network service components for an operational network from a given requirement.

Evaluation

Assignments	35%
Midterm exam	35%
Final exam	30%

The instructors reserve any right to change the grading policy as deemed appropriate.

Policies

Unless mentioned otherwise, the following policies are applied in the course by default:

Assignment is due in one week. A homework submission must be clear and legible to receive full credits. Letter grades A to F may be given, where $A = 10$ and $F = 0$.

Late submission is only accepted under reasonable excuses and explicit permission from the instructors, or it will be deducted one grade off each day. No submission is accepted after the solution has been posted.

Academic integrity is strictly enforced. Submissions with copied contents get at least two grades off.

Course Schedule

The following schedule and contents are subject to change, depending on our progress in the course and the covid-19 situation.

W1 Introduction and basic concepts

W2 Socket programming; AL protocols (1) – HTTP

W3 AL protocols (2) – DNS, MQTT, Websocket; *Hands-on DNS*

W4 UDP and TCP; *Hands-on TCP*

W5 Packet switching networks

W6 Network layer protocols (1); *Hands-on DHCP*

W7 Network layer protocols (2); *Hands-on ICMP*

Midterm exam

W8 Routing algorithms and protocols; Link-layer and multiple access protocols

W9 Ethernet LANs, LAN interconnection, VLAN; Wireless LAN technologies

W10 Physical signal transmissions, media, and standards. Multimedia in the Internet, Real-time Interactive Protocols

W11 Quality of Service mechanisms

W12 *Hands-on*: Packet filtering and address translation; SOHO network

W13 *Hands-on*: ; OSPF operation; VLAN and link aggregation

W14 *Hands-on*: Learning bridge and spanning tree; Simple network management protocols

Final exam