

The Hong Kong University of Science and Technology

UG Course Syllabus

A System View of Communication: From Signals to Packets

ELEC1200

4 Credits

Co-requisites: (COMP1021 OR COMP1022P OR COMP1023) AND (MATH 1003 OR MATH 1014 OR MATH 1020 OR MATH 1024)

Name: Prof Albert WONG and Prof Isabel GUAN

Email: ealbert@ust.hk and eeguan@ust.hk

Course Description

Have you ever wondered how information is transmitted by your mobile phone? Do you know whenever you submit an online query or an AI prompt, hundreds of CPUs may have to exchange data with one another as rapidly as possible in response? This course introduces the key concepts, models, algorithms, basic engineering tools, and tradeoffs underpinning the design and evolution of different communication systems. The basic concepts of signals, channels, noise, errors, coding, modulation and multiplexing, and the layered model for communications will be covered, and this course will be centered around seven laboratory assignments, each designed to introduce one of the major concepts.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)
Lab	25%
Homework	10%
Midterm Exam	25%
Final Exam	40%

Required Texts and Materials

No required text.

Reference Book:

(F) Frenzel, Louis E, "Principles of electronic communication systems." 5th Edition, McGraw-Hill, 2023 (ebook).

(OWN) Alan V. Oppenheim, Alan S. Willsky and S. H. Nawab, Signals and Systems, 2nd Ed., Prentice Hall, 1997

Additional Resources

NA