

ADVANCED COMMUNICATION NETWORKS

Spring 2018 – Graduate Course

Synopsis:

The aim of this course is to provide thorough understanding of modern networks, while reviewing some advance concepts, techniques and applications related to data communication. During this course, we will focus existing technologies, their architecture, protocols, configurations and limitations. More importantly, understanding of this material can help one to develop intuition about some of the important issues in networks and provide the background needed to do research in this field. It also aims to involve students in research activities, particularly through addressing current research challenges within modern communication network. After completion of this course, for students who wish to continue their research, they will identify their potential research areas and for others, it will broaden their knowledge.

Brief Course Outline:

- Introduction
- Enterprise Data Networks
- Existing Technologies and Topologies
- Emergence of Wireless in Data Networks
- Wireless Adhoc Networks
 - Wireless Sensor Networks (WSN)
 - Mobile Ad-hoc network (MANET)
 - Vehicular ad hoc networks (VANET)
- Voice over IP
- Evolution of Networks
 - Cloud and Mobile Computing
- Convergence of Networks and Technologies
- Challenges for a Modern Networks
 - Potential Research Areas

Notes:

- There is no specific course textbook. Contents of this course will comprise of material extracted from various books, high-impact journal papers and other online resources.
- Special emphasis on research project will be given and students will be guided to publish in reputable journals and conferences.

Instructor:

The course will be conducted by Dr. Muhammad Taha Jilani (m.taha@pafkiet.edu.pk). He has completed his PhD in 2016, from Universiti Teknologi PETRONAS, Malaysia. His research interest includes IoT based smart sensors and modern communication networks.