Faculty of Engineering & Technology

Telecommunication Networks

Information :

Course Code :	COM 520	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Specialization of Electronics & Communication

Instructor Information :

Title	Name	Office hours
Lecturer	Nermin Mohamed Fawzy Mahmoud Salem	9
Lecturer	MOHAMED MOUSA SAYED EMAM AHMED	2

Area Of Study :

ÅDevelop student knowledge about the fundamentals of telecommunication and its terminology.
ÅPrepare students to study and design pulse code modulation systems.
ÅTrain students to evaluate the performance of teletraffic theory and models.

Description :

Introduction to telecommunications, Telegraph and telephone, Switching: telegraph, telephone, telex, data, signaling, ISDN, broad band, private switching. Network multiplexing: analog, digital, wavelength division, Data transmission interface equipment: modems, digital data interface equipment, Codecs: audio, video, Copper lines: open wire, twisted pair cable, coaxial cable, Optical fiber technology: types of optical fibers, cables, applications, Radio relay systems, Mobile radio: service mode technology, Satellites: services, technology, digital subscriber lines.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Explain the fundamentals of telecommunication networks and their terms.
2 -	Interpret the principles of teletraffic theory and its fundamental models.
3 -	Illustrate the applications of teletraffic models in recent network design including VoIP and IP-PBX systems.
b.Intellectual Skills: :	
1 -	Analyze the performance of telecommunication networks, e.g. pulse code modulation.
2 -	Apply teletraffic theory on different models of telecommunication networks
c.Professional and Practical Skills: :	
1 -	Apply mathematical background to develop some teletraffic models.
2 -	Use software tools to design the parameters of teleraffic recent networks and evaluate their performance.
d.General and Transferable Skills: :	
1 -	Collaborate effectively within multidisciplinary team.
2 -	Communicate effectively.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introductory Topics	10	6	4
Transmission and Modulation	10	6	4
Digital Networks and Pulse Code Modulation	15	9	6
Line Coding and Regenerative Repeaters	10	6	4
Fundamentals of Teletraffic Theory	10	6	4
Some Basic Teletraffic Models	10	6	4
VoIP protocol and IP-PBX systems	10	6	4

Teaching And Learning Methodologies :

Interactive Lecturing
Problem Solving
Discussion
Experiential Learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
ÅFinal exam	40.00		
o Assignment	10.00		
o In Class Quizzes	10.00		
o Mid-Term exams	30.00		
Project	10.00		

Recommended books :

Annabel Z. Dodd, The Essential Guide to Telecommunications, 5th ed., 2012.

Waleed Al-Hanafy, MSc. thesis: ñTeletraffic Analysis of the Next-Generation Integrated Terrestrial/Satellite Mobile Radio Networks, http://waleedeid.tripod.com/my_master_thesis.pdf, 2002.