

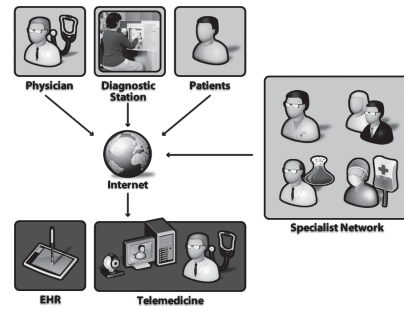
16BM403 TELEMEDICINE

Hours Per Week :

L	T	P	C
3	1	-	4

Total Hours :

L	T	P	WA/RA	SSH/HS	CS	SA	S	BS
45	15	-	20	48	6	12	3	2



Course Description and Objectives:

This course describes the Various Communication Networks, Antennas in Designing the Telemedicine System. The objective of this course is to enable the student to familiarize with basic parts of Tele radiology Systems like Image Acquisition System, Display System, Communication Network and Interpretation.

Course Outcomes:

The student will be able to:

- understand the telemedicine.
- attain knowledge in the wireless communications.
- understand communication types and networks.
- design image acquisition system.
- Know the scope of telemedicine in health care.

SKILLS:

- ✓ *Identify the techniques for reduction of different treatments over communication lines.*
- ✓ *Determine the following up techniques for patients discharged after palliative care.*

ACTIVITIES:

- *Analyze various communication protocols for telemedicine.*
- *Safely transfer data wirelessly to meet data security.*
- *Patient information and health level7/ level8 regulations.*
- *Radio-diagnostic or therapeutic standard maintainance and trade off study of quality over telemedicine.*
- *Transfer the information in different ways using different modulation techniques.*

UNIT - 1**L-9, T-3**

INTRODUCTION: History of Telemedicine, Block diagram of telemedicine system, Definition of telemedicine, Tele health, Tele care, origins and Development of Telemedicine, Scope, Benefits and limitations of Telemedicine.

UNIT - 2**L-9, T-3**

OF INFORMATION: Audio, Video, still Images, text and data, Fax. Types of Communication and Network; PSTN, POTS, ATN, ISDN, Internet, Wireless Communications; GSM, satellite and Micro Wave; Different modulation techniques, Types of antennas depending on requirements, Integration and Operational issues- system integration, Store-and-forward operation, Realtime Telemedicine.

UNIT - 3**L-9, T-3**

DATA EXCHANGES: Network Configuration, Circuit and packet switching, H.320 series (Video phone based ISBN) T.120, h.324 (Video phone based PSTN), Video Conferencing.

UNIT - 4**L-9, T-3**

DATA SECURITY AND STANDARDS: Encryption, Cryptography, Mechanisms of encryption, Phases of Encryption; Protocols- TCP/IP, ISO-OSI, Standards to followed DICOM, HL7; Ethical and legal aspects of Telemedicine- Confidentiality and Law, patient rights and consent, access to medical Records, Consent treatment, Jurisdictional Issues, Intellectual property rights.

UNIT - 5**L-9, T-3**

TELE RADIOLOGY: Basic parts of Teleradiology system- Image Acquisition system, Display system, Communication network, Interpretation. Tele Pathology- Multimedia databases, Color images of sufficient resolution- Dynamic range, Spatial resolution, Compression methods, Interactive control of color, Controlled sampling, Security and confidentiality tools. Tele cardiology, Tele-oncology, Tele-surgery.

TEXT BOOKS:

1. Olga Ferrer-Roca and M.Sosa Ludicissa, "Handbook of Telemedicine", IOS press, 2002.
2. A.C.Norris, "Essentials of Telemedicine and Telecare", John Wiley and Sons, 2002.