

# (BM-425) - Telemedicine

## Course Outline:

### Theory:

1. **Origins and Development of Telemedicine**
  1. Overview of e-Health, Telehealth and Telemedicine
  2. Technological & non-technological drivers
  3. Benefits and limitations of telemedicine
  4. Telemedicine in developed & underdeveloped nations
2. **Technologies of Telemedicine Systems**
  1. Types of information & transmission
  2. Tele-Consultation and Telemonitoring
  3. Types of Wireless Networks
  4. Communication Protocols, shared variables and network streaming
3. **Telemedicine Applications**
  1. Tele-Radiology
  2. Tele-Dermatology
  3. Tele-Pathology
  4. Tele-cardiology
  5. Tele-Ophthalmology
  6. Tele-Surgery
  7. Tele-psychiatry
  8. Tele-dentistry
  9. Disaster Management
4. **Development and Delivery of Telemedicine Services**
  1. The Strategic Context of Service Development: USA, Australia, the UK and Malaysia
  2. The Evaluation of Pilot Studies
5. **Ethical and Legal Aspects of Telemedicine**
  1. Confidentiality, Patient Rights and Consent
  2. Data Protection and Security
  3. Telemedical Malpractice
  4. Intellectual Property Rights
6. **Future Trends in Healthcare Technology**
  1. Prognostics in Telemedicine
  2. The Aging Population: Home Care for the Elderly
  3. Smart Home Assistive Technologies
  4. Clothing Technology and Healthcare
  5. Haptic Sensing for Practitioners
7. **Introduction to Information Systems**
  1. Basics of Information Systems
  2. Rudiments of Healthcare Information Management System
  3. HIS, Now and future
8. **Data standards, Handling and Processing**
  1. Data representation
  2. Storage Tiers
  3. Data Structure
  4. Flow Charts and Work Process Flow Diagrams
  5. Electronic Health Records (HERs)
  6. Pros & Cons of Paper medical records
  7. Functions and Benefits of EHRs
9. **Subsystems of HIS**
  1. Health Information Systems in Clinical Settings
  2. Laboratory Information Systems

3. Radiology Information Systems
4. Clinical Decision Support Systems (CDSS)
5. Healthcare Financial Management.
10. **Network and Communication**
  1. Medical device networking
  2. DICOM
  3. HL7 standards
  4. HIMSS

### **Suggested Teaching Methodology:**

- Lecturing
- Written Assignments Report Writing

### **Suggested Assessment:**

#### **Theory (100%)**

- Sessional (20%)
- Quiz (12%)
- Assignment (8%)
- Midterm (30%)
- Final Term (50%)

### **Recommended Text and Reference Books:**

1. Strategic Information Management in Hospitals: An Introduction to Hospital by Reinhold Haux  
ISBN:0-378-40356-6
  2. Medical Data Management: A Practical Guide ISBN 978-0-387-21773-4
  3. Bernard Fong, ACM Fong, CK Li “Telemedicine Technology: Information Technologies in Medicine and Telehealth” 2011 ISBN: 978-0-470-74569-4
  4. Norris A. C, “Essentials of Telemedicine & Telecare”, 2001 ISBN: 0-471- 53151-0
  5. Marlene Maheu, Ace Allen, Pamela Whitten, “E-Health, Telehealth & Telemedicine”: A guide to startup and success. ISBN: 0787944203
  6. B.S Chowdhry & Faisal Abro, “Telemedicine Modernization & Expansion of Healthcare System”. ISBN: 969-86-80-00-4
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