

Networking and Information System in Medicine

B.E. Sem. VII [BIOM]

EVALUATION SYSTEM

| | Time | Marks |
|----------------------------------|--------|-------|
| Theory Exam | 3 Hrs. | 100 |
| Practical & Oral Exam | – | – |
| Oral Exam | 2 Hrs. | 50 |
| Term Work | – | 25 |

SYLLABUS

- 1. Networking technology**
WAN/LAN, T1, ISDN, DSL, Internet (http, url, domains), ISO model, Ethernet, TCP/IP, Packet switching, circuit switching, Throughput, bandwidth, level of service parameters.
- 2. Basic Security Concepts**
System security in general, Authentication, Authorization, Confidentiality, Integrity.
- 3. Radiology Imaging basics**
Principles of different modalities (CR, DR, XR, XA, RF, US, MR, NM, CT), Image characteristics for each modality
- 4.** Workflow Steps in Radiology and Planning, Designing and Implementing film less Hospital.
- 5.** Introduction to RIS and PACS and HIS/RIS/PACS integration
- 6.** Reengineering workflow: Focus on personnel and process, Interoperability and Workflow integration issues.
- 7.** Reengineering workflow: Radiologist's Perspective.
- 8.** Image acquisition and compression.
- 9.** PACS Architecture Networking and Security.
- 10.** Server and operating system.
- 11.** Storage and Enterprise Archiving.
- 12.** Image Displays.
- 13.** Tele-radiology.
- 14.** Legal Issues and formal policies.

Reference Books

1. PACS Guide to Digital Revolution (*Keith J. Dreyer*) Springer.
 2. Governance of Picture Archiving and Communications Systems (*Carrison K.S. Tong*) Medical Information Science Reference.
 3. PACS and Imaging Informatics (*H.K. Huang, John Wiley*)
 4. Data Communication and Networking (*Behrouz A. Forouzan*) McGraw Hill
 5. Computer Networks (*A.S. Tanenbaum*) Pearson Education
 6. Practical_Imaging_Informatics.pdf
 7. PACS fundamentals (*Herman Oosterwijk*)
 8. DICOM Standard (<http://www.dclunie.com/dicom-status/status.html>)
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