HEALTH INFORMATICS

Course Code: MLOE06 **Course Credits: 3:0:0**
Prerequisite: Nil **Contact Hours: 42**
Course Coordinator(s): Dr. Prabha Ravi, Mr. Mahendra S.J

Course contents

UNIT I

General Overview: Health information technology, Health informatics, Clinical Informatics, Cyber medicine, eHealth, Health 2.0, Public health informatics.

Applications in Healthcare Management: Health Administration Informatics, Medical integration environment, Health information exchange, Hospital information system, Healthcare workflow, Computer physician order entry, ICU quality and management tools, Laboratory information management system, Laboratory information system, mHealth, Practice management software, Clinical Quality Management System

UNIT II

Health Electronic Records: Electronic health record, Electronic medical record**,** Personal health record, Computer STored Ambulatory Record, ProRec, Health record trust, Canadian EMR, Clear Health, Laika, openEHR, OpenEMR, OpenMRS, VistA, VistA imaging, VistA Web, WorldVistA, ZEPRS,

Decision Support Applications: Clinical decision support system, Computer-aided diagnosis, Medical algorithm, Medical logic module, Physicians' Information and Education Resource.

Languages and Development Platforms: MUMPS

UNIT III

Medical Imaging Applications: Digital radiography, Imaging informatics, Patient registration, Radiology information system, Picture archiving and communication system, Analysis of Functional NeuroImages,3DSlicer, Analyze, CARET, CAVEman, FreeSurfer, ImageJ, InVesalius, ITK-SNAP, Mango, OsiriX.

Medical and biological signal applications: Medical monitor, Holtermonitor, Automated ECG interpretation, Open ECG project ,MECIF Protocol, SCP-ECG, European Data Format, OpenXDF

UNIT IV

Databases, Digital Libraries and Literature Retrieval: Biological database, Medical literature retrieval, MEDLINE, Entrez, ETBLAST, PMID, PubMed, GoPubMed, Pubget, PubMed Central, UK PubMed Central, TRIP Database, Twease, SciELO.

Telehealth and Telemedicine: Connected Health, Telehealth, Telemedicine, Telecare, Telephone triage, Remote guidance, Tele-epidemiology, Telenursing, Tele dermatology, Telemental Health, Tele psychiatry, Tele radiology, Tele rehabilitation, Virtual reality in tele

rehabilitation, Campus medicus, Wireless Medical Telemetry Service.
Virtual Systems: Virtual Physiological Human, Visible Human Project**.**

UNIT V

Legislation and Regulation: Health Insurance Portability and Accountability Act, Certification Commission for Healthcare Information Technology, Software Systems, Medical software, Dental software, List of freeware health software, List of open source healthcare software, List of neuroimaging software, Mirth, Mpro , Open Dental, Personal Health Application .
Clinical Research Informatics: Translational research informatics, Clinical trialmanagement, Clinical data management system, Case report form, Clinical coder, Clinicaldata acquisition, Data clarification form, Patient-reported outcome.
Standards, Coding and Nomenclature: Diagnosis codes, Procedure codes.

Text Books

1. Contemporary Health Informatics, Mark L. Braunstein , American Health Information Management Association, 2014
2. Wikipedia Handbook of Biomedical Informatics, pediapress, 2011
3. Biomedical Informatics: Computer Applications in Health Care and Biomedicine , Edward H. Shortliffe , James J. Cimino, et al., Springer; 3rd edition, 2006.

Course Outcomes (COs):

At the end of the course, students will be able to

1. Understand Health Systems and Policy. (PO-1,2,3 & PSO-1,2)
2. Develop skills in the management of health data, the electronic health record (EHR), health informatics projects and organizational resources. (PO-2,3,4 & PSO-1,2)
3. Know how computers store, access, and process data. (PO- 5,6,7 & PSO-2)
4. Use software applications to solve simple but meaningful real-world problems. (PO-7,8,9& PSO-3)
5. Design and Implement Information Systems determining the required and available healthcare data and identify an appropriate database design. (PO-9,10,11 & PSO-3)