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Course Profile - Department of Information Technologies

Course Number : **IT 432**	Course Title : Medical Informatics
Required / Elective : Elective	Pre / Co-requisites : Elementary biology, freshman chemistry, and calculus
Catalog Description: The human body as a machine: physiological systems, state-of-the-art in diagnostic techniques and related instrumentation; high technology in patient care and therapy. Computers in medicine: clinical data, information databases in healthcare, electronic patient data, telemedicine, telehealth. Ethical issues in medical informatics.	Textbook / Required Material : *Medical Informatics, Computer Applications in Healhcare and Biomedicine,* E. H. Shortliffe, L. E. Perreault, Springer Verlag *Introduction to Biomedical Engineering,* John D. Enderle, Susan M. Blanchard, Joseph D. Bronzino
Course Structure / Schedule : **(3+0+0) 3 / 6 ECTS**	
Extended Description : The course is intended to introduce the concept of clinical data and how they are acquired to constitute an electronic patient record with respect to medical informatics. Basics of common biomedical instruments and their operational principles will be explained to motivate the students in generating creative ideas for novel and better clinical data processing and retrieval systems	
Design content : analyzing and designing medical data	Computer usage: computer-based patient records

Course Outcomes:

After completing this course, students should be able to:

- describe current standards that are being applied to patient information [7]
- apply effective and efficient techniques to acquire, store and utilize medical data in a healthcare setting [2,3]
- recognize major clinical vocabularies and classification systems [5,7]
- comprehend essential concepts and practical uses for data warehousing, decision support and business intelligence [7]
- employ secure and private techniques for handling patient information in healthcare organizations [2,3]
- appreciate the implications of the convergence of bioinformatics and clinical engineering with medical informatics [4,7,8]
- identify key infrastructure components and related technical standards [2]
- define the major challenges to health information technology adoption in health care organizations [3]
- describe and compare the best practice approaches to systems acquisition [3,7]
- describe and compare the best practice approaches to systems implementation [3,7]
- define the major approaches to evaluation of health information technology outcomes at the organizational level [5,7,8]

Program Outcomes for Management Information Systems Program:

1. A foundation in mathematics and basic sciences and ability to apply acquired knowledge as they relate to the study and practice of information systems management.
2. An ability to align information technology, organizational and strategic matters.
3. An ability to propose, analyze, design, develop, test and maintain an information technology system including software solutions, security model, computer and network infrastructure, etc. to solve information systems problems.
4. An ability to analyze local and global impact of computing on individuals, organizations and society; and the ability to apply information systems techniques, skills, and tools for regular computing practices as well as to improve effectiveness of current methodologies.
5. An ability to effectively communicate in oral and written media with all kinds of related audiences; and prepare documentation for this purpose as required.
6. An understanding of professional, ethical, legal, and social issues and responsibilities of information systems management profession.
7. A taste and breadth of knowledge across several social topics outside the immediate requirements of the information systems management profession, and the ability to work within heterogeneous teams to accomplish a common goal including people from the information systems area as well as other disciplines.
8. An ability to engage in life-long learning and professional development for personal improvement to follow contemporary information systems issues.

Teaching methods

Pre-readings, Case-studies, lectures, project

Assessment methods

1 Midterm exam	20%
1 Subject presentation	20%
1 Design project	20%
1 Final	40%

Student workload:

Preparatory reading	40 hrs
Lectures, workshop, discussions	45 hrs
Projects, presentations	50 hrs
Midterm Exam	6 hrs
Final Exam	9 hrs
TOTAL ……	**150 hrs**

Prepared by : Dr. N.Z. Perdahci	Revision Date : Jul 18, 2010