Course Title	**Medical Informatics**				
Course Code	MD275				
Course Type	Elective				
Level	1st Cycle (MD)				
Year / Semester	2nd Year / 3rd Semester				
Teacher's Name	TBA				
ECTS	3	Lectures / week	1 hr / 14 weeks	Laboratories / week	0 hr / 14 weeks
Course Purpose and Objectives	This course is intended to give the student a broad overview of the basic principles underlying medical informatics. The students will be able to identify and solve medical informatics related problems, build, run and optimize complex healthcare processes. They will also be able to process clinical data with information science and tools, improve healthcare, and gain current knowledge in the computer science aspects of Biomedical Science.				
Learning Outcomes	Upon successful completion of this course, students will be able to: • Discuss the basic concepts of biomedical informatics. • Explain data structures, standardization versus structurization, identify the differences between data, information and knowledge. • Demonstrate knowledge of the terminology and paradigms used in different areas of medical informatics for representing and interpreting data, by being able to apply them to sample data-intensive medical problems. • Demonstrate understanding of different representations of biomedical data. • Demonstrate knowledge of the basic techniques for interpreting and processing biomedical data, by being able to demonstrate how these techniques work for synthetic data sets. • Describe the human decision-making process, reasoning and problem solving.				
Prerequisites	None		Required	None	
Course Content	Students will familiarize themselves with the following: 1. Fundamentals of Biomedical Science, Data, and Information Knowledge				

	2. Structured Data: Coding, International Statistical Classification of Diseases, the Systematized nomenclature of Medicine, Medical Subject Headings and Unified Medical Language 3. Biomedical Databases: Acquisition, Storage, Information Retrieval and Use 4. Semi structured, weakly structured and unstructured data 5. Biomedical Decision Making: Reasoning and Decision Support 6. Introduction to the basics of Visualization Science and Visualization Methods 7. Apply analytical and visualization skills to datasets. 8. Biomedical Information Systems, PACS, Medical Knowledge Management 9. Privacy, Safety and Security of Biomedical Data 10. Use-case: An in-class exercise where medical students are required to access a biomedical database in order to acquire, store, analyze and discuss the dataset in question.
Teaching Methodology	Face-to-face
Bibliography	• Holzinger, A. Process Guide for Students for Interdisciplinary Work in Computer Science/Informatics. Norderstedt: BoD. • Holzinger, A. Biomedical Informatics: Computational Sciences meets Life Sciences, Norderstedt, BoD. • Oleg S. Pianykh, “Digital Imaging and Communications in Medicine (DICOM): A Practical Introduction and Survival Guide”, Springer. • H. K. Huang , “PACS and Imaging Informatics: Basic Principles and Applications”, • Oleg S. Pianykh, “Digital Image Quality in Medicine”, Springer. • Shortliffe et al., BIOMEDICAL INFORMATICS, Computer Applications in Health Care and Biomedicine Springer-Verlag, • O’Carroll et al, PUBLIC HEALTH INFORMATICS AND INFORMATION SYSTEMS, Health Informatics Series, Springer. • Collen, Morris, A History of Medical Informatics in the United States 1950 to 1990, AMIA (American Medical Informatics Association), • Slack, Cybermedicine: How Computing Empowers Doctors and Patients for Better Health Care, Jossey-Bass, • Ellis, Technology and the Future of Health Care, Preparing for the Next 30 Years, Jossey-Bass,

Assessment	Examinations: 70% Assignment 20% Oral & Class Participation: 10%
Language	English