

Anno Accademico 2019/2020

FUNDAMENTALS	OF MEDICAL	INFORMATICS

Enrollment year

2018/2019

Academic year

2019/2020

Regulations

DM270

Academic discipline

ING-INF/06 (ELECTRONIC AND INFORMATION BIOENGINEERING)

Department

DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING

Course

BIOENGINEERING

Curriculum

PERCORSO COMUNE

Year of study

2°

Period

1st semester (30/09/2019 - 20/01/2020)

ECTS

6

Lesson hours

107 lesson hours

Language

Italian

Activity type

WRITTEN AND ORAL TEST

Teacher

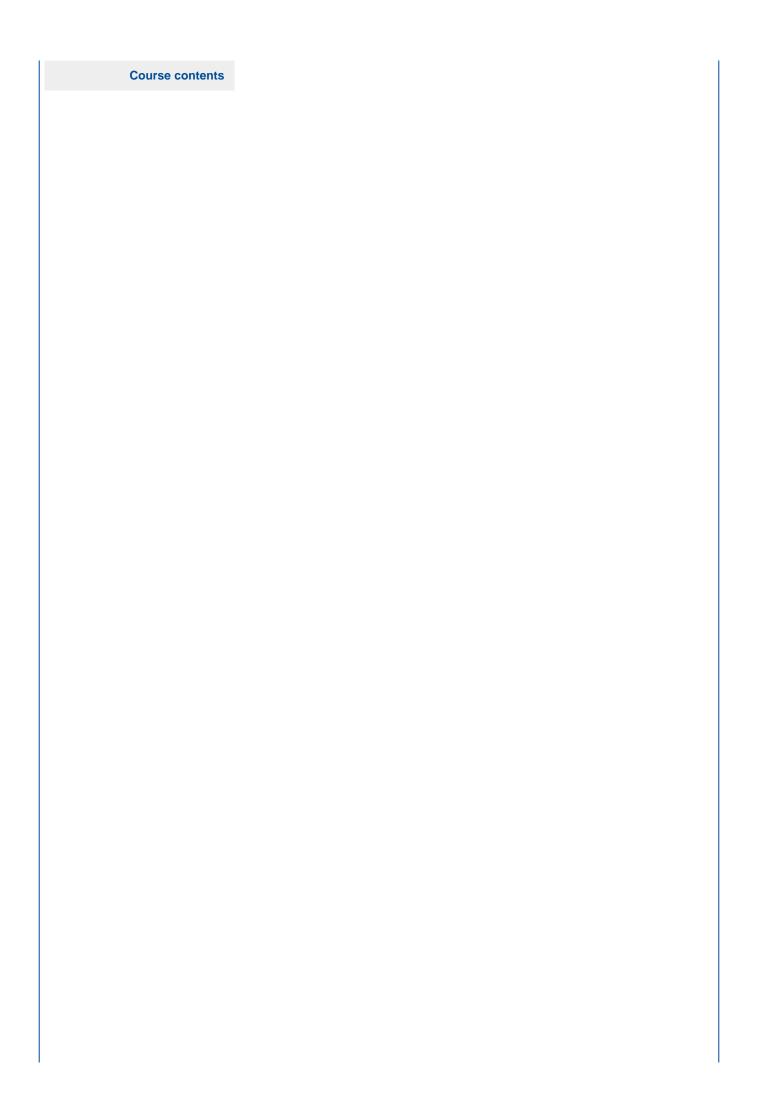
BELLAZZI RICCARDO (titolare) - 3 ECTS SACCHI LUCIA - 3 ECTS

Prerequisites

Basic informatics and programming skills

Learning outcomes

The course aims to provide the basic elements of Medical Informatics as a discipline. Medical Informatics can be seen as the "logic" of healthcare, or as the rational study of the entire process of patient care. Students will then learn the basic elements of healthcare organization in Italy and abroad and the problems related to the representation of medical information. The course will develop along two lines: the study of issues related to the exchange of data and information in health care information systems and finally on learning MATLAB, and XML. At the end of the course the student will have acquired the basic skills necessary to understand what are the tasks and activities of information systems in health care



Elements of health care organization

The organization of health care in Italy

The reimbursement of hospital services

The DRG system

Indicators of efficiency and effectiveness

Representing information

Coding Systems: ICD9, ICD9-CM, ICD10, ATC, LOINC

Terminology: SNOMED meta-thesaurus: UMLS

Standards: HL7

Information systems and computer networks in healthcare
The structure and key elements of health information systems

UML diagrams, use case, activity and sequence

Computer Networks The ISO / OSI model Ethernet, TCP / IP

Internet and the HTTP protocol

Security and privacy: elements of legislation

Digital signature and HTTPS

Matlab

Matlab: a software environment for numerical computation and

engineering

Matlab as a programming language, toolboxes Vectors and matrices, cell arrays, structures

Control structures

Functions

Reading and writing files

Development of graphical user interfaces

Writing and Reading XML documents in Matlab

XML

Introduction to XML and Markup Languages ??in

Documents well formed

Introduction to DTD

Valid documents

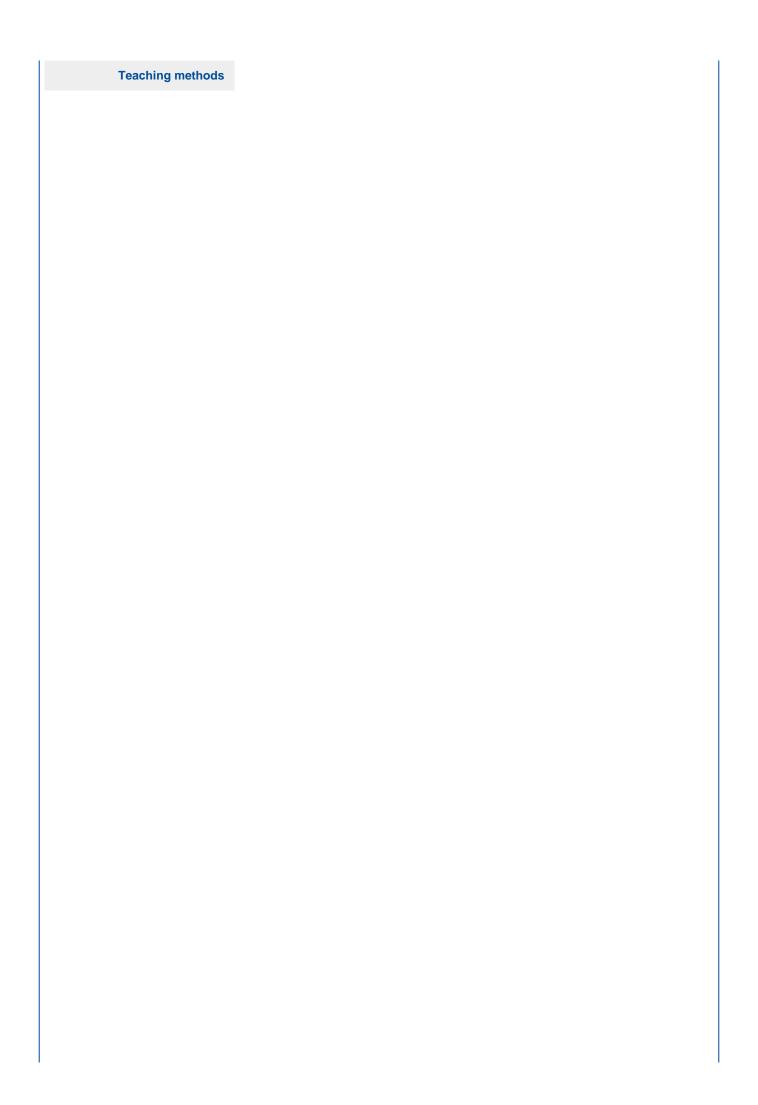
Using XML editor

XML Parsers

XML Schemas

Practical Activities with Matlab

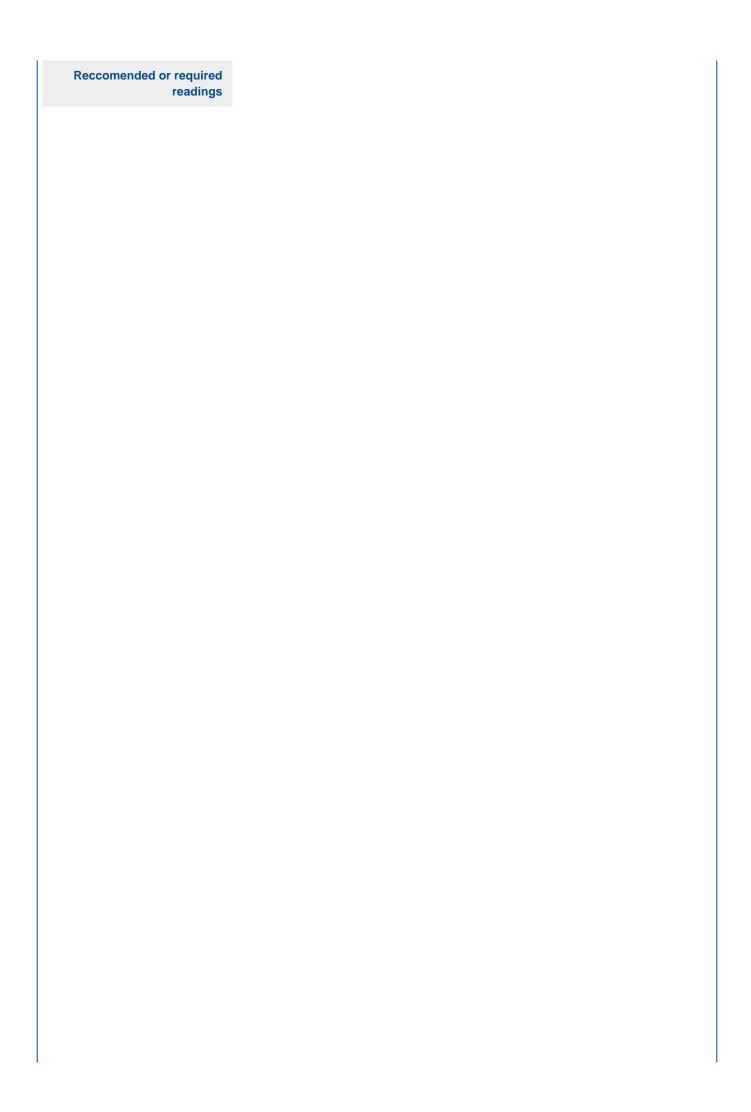
Students will work in groups to program a Matlab application with a graphical interface for the management of hospital data. The available files are samples of real hospitals data.



Lectures (hours/year in lecture theatre): 30

Practical class (hours/year in lecture theatre): 0

Practicals / Workshops (hours/year in lecture theatre): 50

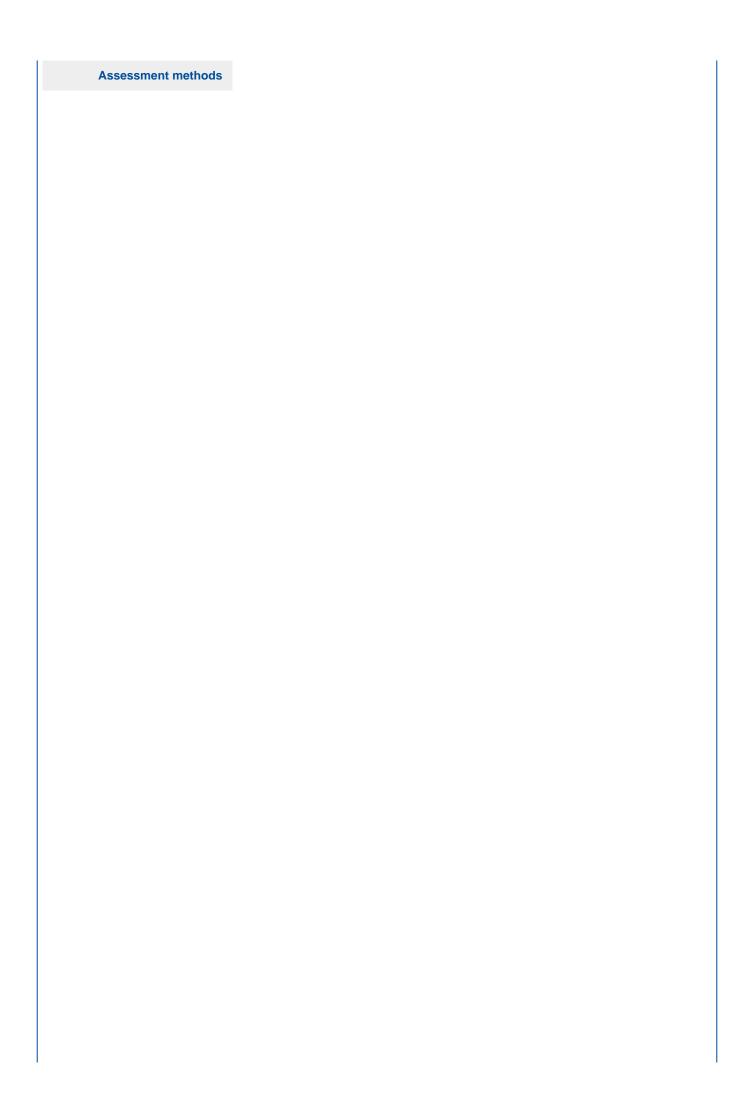


Slides and notes available at: http://elearning2.unipv.it/ingegneria/

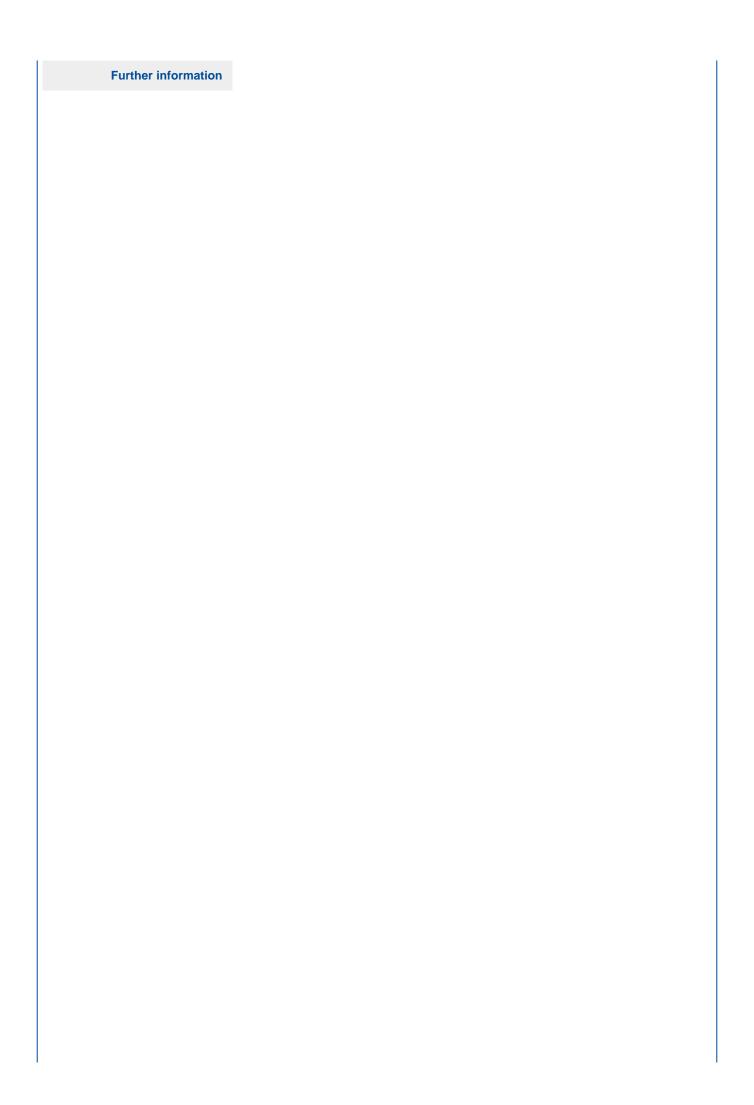
D. Comer. Internet e Reti di calcolatori. Addison-Wesley.

Joe Fawcett, Danny Ayers, Liam R. E. Quin. Beginning XML, 5th Edition (ebook).

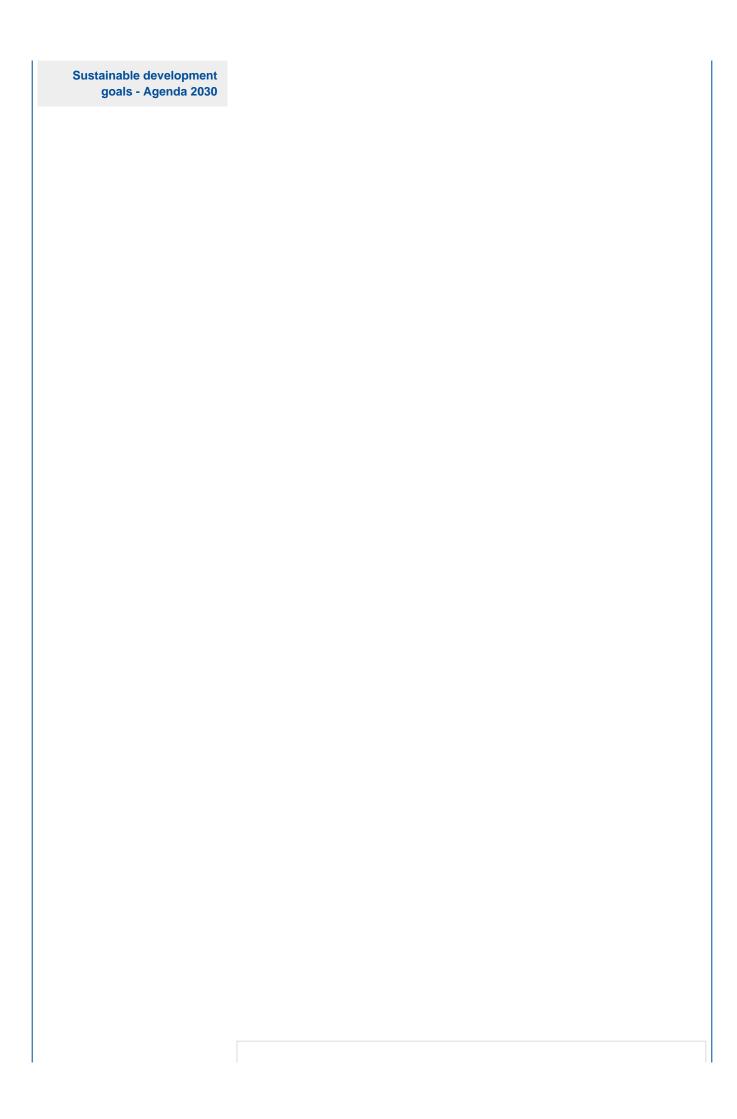
Dan Pilone, Neil Pitman. UML 2.0 in a Nutshell. O'Reilly.



Written exam. Software projects.	



Written exam. Software projects.	



\$lbl legenda sviluppo sostenibile