



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Information systems in medicine

Course

Field of study

biomedical engineering

Area of study (specialization)

-

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/1

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

15

Tutorials

0

Laboratory classes

15

Projects/seminars

0

Other (e.g. online)

0

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

Jacek Kobusiński

Responsible for the course/lecturer:

Prerequisites

A students who start this course should know how to represent information in computer systems and have basic knowledge of computer science. They should also be able to operate a computer, obtain information from indicated sources, operate abstract concepts and solve problems by themselves.

Course objective

To teach students the basics of how information systems work in medicine. Outlining basic problems



and challenges related to the use of medical knowledge in the above-mentioned systems. Acquiring the ability to model medical data and selecting an appropriate way of representing this data in an IT system.

Course-related learning outcomes

Knowledge

1. Defines, differentiates and classifies information systems concepts.
2. Is familiar with the basic modelling of data and its representation in information systems.
3. Understands the need to standardize the mechanisms of data exchange.
4. Has knowledge of information systems and current trends related to their development.
5. Understands the need to archive and standardise data recording and the need for continuous development of an IT system.

Skills

1. Is able to apply appropriate standards to medical data.
2. Has the ability to evaluate information systems and to propose improvements related to their operation.

Social competences

1. Is aware of the consequences of using information systems in public life.
2. Is able to apply multimedia technologies in communication and teamwork.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formulation evaluation:

- lectures: based on answers to questions about the material discussed in previous lectures,
- laboratories: on the basis of an assessment of the current progress of the tasks,

Summary evaluation:

- lectures: assessment of the knowledge and skills shown in the exam in the form of a multiple-choice test consisting of about 30 questions; the exam is passed after obtaining at least 51% of points.

Discussion of the results of the exam. The verification exam is held at the end of the semester.

- laboratories: a credit is given on the basis of the evaluation of tasks performed during the laboratory and the report on additional tasks. The student must obtain a positive assessment of the performed task.

Programme content

Lecture:



- Showing motivation and goals, discussing basic concepts, outlining areas of application of information systems in medicine.
- Theoretical and practical aspects connected with building information systems.
- Coding and classification of medical data.
- Personal data protection - legal and technical aspects.
- Electronic medical records - problems and threats, legal conditions, practical examples.
- Modelling of medical data (standard PN-EN 13606 and HL7 CDA).
- Interoperability .
- Automatic identification - barcode technology, RFID, direct tagging
- Various problems and practical solutions based on an integrated hospital system (case study)

The laboratory:

- Data modelling.
- Mechanisms of data analysis using a spreadsheet.
- Data record formats taking into account quality, data semantics and interoperability.
- Introduction to SQL language.
- Familiarisation with a sample hospital IT system.

Teaching methods

lecture: multimedia presentation

laboratory exercises: multimedia presentation, presentation illustrated with examples on a blackboard, practical computer exercises

Bibliography

Basic

1. W. Trąbka, "Hospital Information Systems", Vesalius, Cracow 1999
2. E. Piętka "Integrated Information System in Hospital Work", PWN, 2004

Additional

1. The specifications and technical documentation of the standards available on the Internet
2. E. Shortliffe and others, "Medical Informatics", Springer Verlag, New York, 2001.
3. R. Rudowski (ed.) "Medical computer science", PWN, 2003



Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	40	1,6
Student's own work (preparation for laboratory classes, preparation for exam, project preparation) ¹	35	1,4

¹ delete or add other activities as appropriate