COURSE DESCRIPTION CARD - SYLLABUS

Course name
Surgical instruments and their use in surgical operation [S1IBio1>ICiZO]

Course

Field of study
Biomedical Engineering

Year/Semester
3/5

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other (e.g. online)
0

Tutorials
15

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

- basic knowledge from the science of materials, propaedeutics of medical sciences and human anatomy - logical thinking and spatial imagination - understands the necessity of learning and acquiring new knowledge

Course objective

Getting to know basic and specialized surgical instruments, their functions during surgery and directions of development of surgical equipment for modern surgery

Course-related learning outcomes

Knowledge:
1. student should know the basic types of surgical instruments.
2. student should know the applications of basic surgical tools and directions of development of modern surgical equipment

Skills:
1. student knows how to adapt tools to specific operational techniques and formulate design and

construction assumptions for these tools.
2. student knows how to customize tools for specialized surgical needs.

Social competences:
1. student can predict the impact of their activities on the work of other professional groups.
2. student is able to cooperate in a group.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Forming rating:
a) for the lectures:
- Based on answers to questions concerning the material discussed in previous lectures
b) for the tutorials:
- On the basis of an assessment of the current progress of tasks,
Summary rating:
Lecture: Crediting based on a test consisting of 20 test questions (pass in the case of a correct answer to at least 60% of questions: <60% - ndst, 60% -75% - dst, 75% -80% - dst +, 80% - 90% - db, 90% -95% - db +, 95% -100% - very good) carried out at the end of the semester.
Tutorials: Credits based on oral or written answer on the content of each exercise performed, report on each exercise as indicated by the instructor. To get a pass, all the exercises must be passed (positive assessment of the answer and report).

Programme content

Surgical instruments - history, materials and medical applications.

Course topics

Lecture:
1) History of surgical tools development.
2) Basic materials used for the production of surgical instruments.
3) Basic surgical instruments, rules for their preparation for use.
4) Specialist tools for abdominal, orthopedic and traumatic surgery.
5) Surgical and visual tools used in endoscopic access.
6) Stitching and traditional suture materials, mechanical stitching.
7) Additional equipment used during surgical procedures.
8) Medical robots and development directions of modern surgical equipment.
Tutorials:
1) Recognition of surgical instruments, their basic application.
2) Adaptation of surgical instruments to specific anatomical regions, tissues and organs in terms of formulating assumptions for their engineering design.
3) Work with surgical instruments, differences in universal and specialist tools

Teaching methods

1. Lecture: multimedia presentation.
2. Tutorials: solving tasks, practical exercises, discussion.

Bibliography

Basic
1. Rutheford C.J., Differentiating Surgical Instruments, F. A. Davis Company, 2011
2. Bielecki K., Narzędzia, protezy i szwy chirurgiczne, Makmed, Lublin 2008.
Additional
1. Kramme R., Hoffmann K-P., Pozos R. , Springer Handbook of Medical Technology, Springer, 2011.
2. Nemitz R., Surgical Instrumentation: An Interactive Approach, Saunders, 2009.
3. J. Kirkup , The Evolution of Surgical Instruments: An Illustrated History from Ancient Times to the Twentieth Century , Norman Publishing, 2006.
4. Rosen J., Hannaford B. , Satava R.M., Surgical Robotics: Systems Applications and Visions, Springer

2010.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,20
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	0,80