COURSE SYLLABUS AND COURSE REQUIREMENTS
ACADEMIC YEAR 2023-2024 SEMESTER 2.

Course title	*Practical Anthropometrical Modelling*
Course Code	MSM624ANEG
Hours/Week: le/pr/lab	202
Credits	4
Degree Programme	Biomedical Engineering Master
Study Mode	*Full Time*
Requirements	Exam
Teaching Period	Spring
Prerequisites	
Department(s)	
Course Director	Dr. Gasz Balázs
Teaching Staff	Dr. Gasz Balázs

COURSE DESCRIPTION

A short description of the course (max. 10 sentences).
Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

Improving productive creativity through practical use of 3D visualization skills. The content of the course material - through mastering the subject of Design Anthropometric Fundamentals - is the knowledge of product design required to carry out a design activity that meets real customer requi-rements. Innovative solution of the problems and tasks to be solved, search for more rational, in-novative solutions. Visualization, 3D modeling and printing of the innovative product created as the final solution to the problem.

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

Goals, student learning outcome.
Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

Improving productive creativity through practical use of 3D visualization skills. The content of the course material - through mastering the subject of Design Anthropometric Fundamentals - is the knowledge of product design required to carry out a design activity that meets real customer requi-rements. Innovative solution of the problems and tasks to be solved, search for more rational, in-novative solutions. Visualization, 3D modeling and printing of the innovative product created as the final solution to the problem.

2. COURSE CONTENT

Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content

	TOPICS
LECTURE	*1. Anatomic/ organic 3D modelling software, methods, techniques* *2. Surgical/interventional planning patient-specific demonstration and planning* *3. AI in 3D planning* *4. Entrepreneurship, guidance to start and conduct innovative projects* *5. Surgical robotics* *6. Surgical education, novel era of 3D modelling in medical simuation*
PRACTICE	*1. Slicer 3D*

	2. *Autodesk* 3. *ANSYS Dyscovery, ANSYS workbench* 4. *Solving real 3D modelling challenges in team.*
LABORATORY PRACTICE	1. *topic* 2. *topic* 3. *topic* 4. *etc.*

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

LECTURE

week	**Topic**	**Compulsory reading; page number (from … to …)**	**Required tasks (assignments, tests, etc.)**	**Completion date, due date**
1.	Intro- motivation, modules		Interactivity and motivation	…
2.	Live case, interactive demonstration of solutions I – demonstrational anatomical modelling		Interactivity and motivation; finding common and alternative solutions to clinical challanges	
3.	Live case, interactive demonstration of solutions I – demonstrational anatomical modelling			
4.	Live case, interactive demonstration of solutions II – test operations, surgical guides			
5.	Live case, interactive demonstration of solutions II – test operations, surgical guides			
6.	Live case, interactive demonstration of solutions II -case-specific implants			
7.	Live case, interactive demonstration of solutions II – case-specific implants			
23.	Live case, interactive demonstration of solutions III -case-specific implants			
24	Live case, interactive demonstration of solutions III – case-specific implants			
8.	Software solutions in patient/ anatomic, organic 3D modelling			
9.	Software solutions in patient/ anatomic, organic 3D modelling			
10.	3D modelling and printing in forncic medicine			
11.	3D planning in cardiac surgery/congenital cardiology			
12.	3D planning in cardiac surgery/congenital cardiology			
13.	Entepreniourship / general/ IP protection			
14.	Entepreniourship / EIT,			
15 *16.*	3D visual modelling /cast modelling, photo slicing-reconstructions			
17	3D visual modelling /cast modelling, photo slicing-reconstructions			
18	Surgical robotics			
19	Surgical robotics, -			
20	AI in3D			

21	AI in3D			
22	AI in finite modelling and VMTK			

PRACTICE, LABORATORY PRACTICE

week	**Topic**	**Compulsory reading; page number (from … to …)**	**Required tasks (assignments, tests, etc.)**	**Completion date, due date**
1.	Slicer 3D - I			
2.	Slicer 3D - I			
3.	Slicer 3D - II			
4.	Slicer 3D - II			
5.	Autodesk			
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.	ANSYS			
15.				
16				
17				
18				
19				
20				
21				
22	Team challenge- clinical case solution plan the intervention			
23				
24				

3. ASSESSMENT AND EVALUATION

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Examination and Evaluation System)

ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.

Method for monitoring attendance *(e.g.: attendance sheet / online test/ register, etc.)*

List of attendees, giving directed questions and challenges. (it is interactive…)

ASSESSMENT

Cells of the appropriate type of requirement is to be filled out (course-units resulting in mid-term grade or examination). Cells of the other type can be deleted.

Course-unit with final examination

Mid-term assessments, performance evaluation and their weighting as a pre-requisite for taking the final exam

(The samples in the table to be deleted.)

Type	Assessment	*Weighting as a proportion of the pre-requisite for taking the exam*
attendance	*0*	*0%*

Requirements for the end-of-semester signature

(Eg.: mid-term assessment of 40%)

ATTENDANCE

Re-takes for the end-of-semester signature (PTE TVSz 50§(2))

The specific regulations for grade betterment and re-take must be read and applied according to the general Code of Studies and Examinations. E.g.: all the tests and the records to be submitted can be repeated/improved each at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

…

Type of examination *(written, oral):* *written*

The exam is successful if the result is minimum 40 %. *(The minimum cannot exceed 40%.)*

Calculation of the grade *(TVSz 47§ (3))*

The mid-term performance accounts for … %, the performance at the exam accounts for … % in the calculation of the final grade.

Calculation of the final grade based on aggregate performance in percentage.

Course grade	Performance in %
excellent (5)	85 % …
good (4)	70 % ... 85 %
satisfactory (3)	55 % ... 70 %
pass (2)	40 % ... 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

4. SPECIFIED LITERATURE

In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)

COMPULSORY READING AND AVAILABILITY

[1.] Lecture notes and uploaded literature

RECOMMENDED LITERATURE AND AVAILABILITY

[3.] ……

[4.] ……

[5.] ……