

# COURSE GUIDE – short form

Academic year 2014-2015

Course name <sup>1</sup>	<b>Medical robotics</b>					Course code			
Course type <sup>2</sup>	DS	Category <sup>3</sup>	DO	Year of study	II	Semester	3	Number of credit points	8

Faculty	Mechanical Engineering	Number of teaching and learning hours <sup>4</sup>						
Field	Robotics	Total	L	T	LB	P	IS	
Specialization	Robotic Systems	42	28	-	12	-	-	

Pre-requisites from the curriculum <sup>5</sup>	Compulsory	Robotic systems architecture, Electromechanical microsystems
	Recommended	Advanced dynamic of robotic systems

General objective <sup>6</sup>	The principal aim of this discipline is to accomplish a thorough specialized training in robotic systems with focus on medicine. It also aims to broaden and develop creative and imaginative capabilities.
Specific objectives <sup>7</sup>	<ul style="list-style-type: none"> <li>Discipline contains information about: robots specialize in surgery, post-traumatic rehabilitation in healthcare related (exo-prostheses, dental units, defibrillators, laparoscopic instruments, surgical tables, etc.).</li> <li>It is a specialized discipline designed to provide students the necessary knowledge of design and research into medical robotic systems.</li> <li>Discipline is calling on knowledge of robotic systems architecture, micro sensors and transducers robotic, specific methods and techniques of analysis and design assisted.</li> </ul>
Course description <sup>8</sup>	<p>Course: generalities regarding medical robots; general aspects of human anatomy and physiology necessary in medical robotics; orthotics and prosthetics; dental units, manipulator arms used in medical recovery and defibrillators; laparoscopic equipment; surgical robots; mobile medical robots: robotic wheelchairs, medical robots.</p> <p>Laboratory: concepts and specific anthropometric calculations; analysis and design of a manipulator system type used in medical recovery; analyze the dynamics of a robotic arm with two degrees of freedom; structural analysis and construction of some prostheses used in human amputated limb.</p>

Assessment		Schedule <sup>9</sup>	Percentage of the final grade (minimum grade) <sup>10</sup>
Continuous assessment	Class tests along the semester	-	%
	Activity during tutorials/laboratory works/projects/practical work	40	%
	Assignments	-	%
Final assessment	Final assessment form <sup>11</sup>	60	%
	Examination procedures and conditions: 1. Exam grid; percent 50 % 2. Report presentation; percent 50 %.		

Course organizer	Associate Professor eng. Emil Budescu, PhD	
Teaching assistants	Associate Professor eng. Emil Budescu, PhD	

<sup>1</sup>Course name from the curriculum

---

<sup>2</sup> DF – fundamental, DID – in the field, DS – specialty, DC – complementary (from the curriculum)

<sup>3</sup> DI – imposed, DO –optional, DL – facultative (from the curriculum)

<sup>4</sup> Points 3.8, 3.5, 3.6a,b,c, 3.7 from the Course guide – extended form (L-lecture, T-tutorial, LB-laboratory works, P-project, IS-individual study)

<sup>5</sup> According to 4.1 – Pre-requisites - from the Course guide – extended form

<sup>6</sup> According to 7.1 from the Course guide – extended form

<sup>7</sup> According to 7.2 from the Course guide – extended form

<sup>8</sup> Short description of the course, according to point 8 from the Course guide – extended form

<sup>9</sup> For continuous assessment: weeks 1 – 14, for final assessment – colloquium: week 14, for final assessment-exam: exam period

<sup>10</sup> A minimum grade might be imposed for some assessment stages

<sup>11</sup> Exam or colloquium