Subject programme

1. Subject name / subject module: **Team Project**
2. Lecture language: **English**
3. The location of the subject in study plans:
   - Area or areas of the studies: **Computer Control Systems Engineering**
   - Degree of the studies: **2nd degree studies**
   - Field or fields (implementation of effects standard): **Mechatronics**
4. Supervision of subject implementation:
   - The Institute / Another unit: **The Institute of Informatics and Mechatronics**
   - The person responsible for the subject: **Ocetkiewicz Tomasz, mgr inż.**
   - People cooperating in the development of the programme of the subject:
5. The number of hours and forms of teaching for individual study system and the evaluation method

Form of classes / Mode of study		SOW	ECTS	Project work	SOW	ECTS	...	SOW	ECTS	...	SOW	ECTS		SOW	ECTS	...	SOW	ECTS	...	SOW	ECTS	Total ECTS
Full-time studies				12	138	6																6
Part-time studies																						
Credit rigor	...			Graded assigment																		

6. Student workload – ECTS credits balance
   1 ECTS credit corresponds to 25-30 hours of student work needed to achieve the expected learning outcomes including the student's own work

Activity (please specify relevant work for the subject)	Hourly student workload (full-time studies/part-time studies)
Participation in project classes	**12**
Preparing a team project	**138**
Participation in an exam / graded assignment / final grading	**2**
Total student workload	**150**
ECTS credits	**6**
* Student's workload related to practical forms	**150**
Student's workload in classes requiring direct participation of academic teachers	**12**

7. Implementation notes: recommended duration (semesters), recommended admission requirements, relations between the forms of classes:

   None

   Recommended duration of the subject is taken from the course plan.
8. Specific learning outcomes – knowledge, skills and social competence

Specific learning outcomes for the subject		Form	Teaching method	Methods for testing of (checking, assessing) learning outcomes
Outcome symbol	Outcome description			
Skills				
K_U07	A student possesses sufficient language skills to give an oral presentation and debate on technical issues concerning mechatronics.	Project work	Inquiry methods	Assessment of the project and activity in the group of its members
K_U08	A student has sufficient skills to manage the work of project teams in solving typical and new problem situations during the implementation of interdisciplinary mechatronic projects and take a leading role in teams.			
Social competence				
K_K01	A student is ready to critically assess the acquired knowledge, understands the importance of continuing professional development, and knows how to inspire and organize learning content to maximize the efficacy of the learning process.	Project work	Inquiry methods	Assessment of the project and activity in the group of its members

K_K03	A student has the competence to assess the scale of the difficulty of the design problem and correctly indicates the priorities in solving them.			

9. Assessment rules / criteria for each form of education and individual grades

0% - 50%	ndst	81% - 90%	db
51% - 70%	dst	91% - 93%	db+
71% - 80%	dst+	94% - 100%	bdb

Activity	Grades	Calculation	To Final
Final project	5 (bdb)	5	5

10. The learning contents with the form of the class activities on which they are carried out

(Project work)

1. Teamwork: Roles, Methodologies, Tools;

2. Students will be divided into small grups and then will work of them own solutions in one of presented methodology;

3. At the end of all classes students will have to present their work progres;

4. At the end of the term groups will have to present their solutions and make presentations.

11. Required teaching aids

Specialist laboratory

12. Literature:
  a. Basic literature:

  1. Mikael Berndtsson, Jörgen Hansson, Björn Olsson, Björn Lundell; Thesis Projects; ISBN 978-1-84800-009-4; Springer, London 2008.

  2. M. Daud Alam, Uwe F. Gühl; Project-Management in Practice; ISBN 978-3-662-52944-7; Springer 2016
  a. Supplementary literature:

  1. Günther Ruhe, Claes Wohlin; Software Project Management in a Changing World; ISBN 978-3-642-55035-5; Springer, Berlin, Heidelberg 2014

  2. Indira Knight; Connecting Arduino to the Web; ISBN 978-1-4842-3480-8; Apress, Berkeley, CA 2018

  3. Jeff Cicolani; Beginning Robotics with Raspberry Pi and Arduino; ISBN 978-1-4842-3462-4; Apress, Berkeley, CA 2018

  4. Bob Dukish; Coding the Arduino; ISBN 978-1-4842-3510-2; Apress, Berkeley, CA 2018

  5. Tianhong Pan, Yi Zhu ; Designing Embedded Systems with Arduino; ISBN 978-981-10-4418-2; Springer 2018
  b. Internet sources:

  1. Sparkfun Tutorial - learn.sparkfun.com

  2. Arduino Language Reference - www.arduino.cc/reference/en

  3. Adafruit Learn - learn.adafruit.com

  4. Arduino Library List - www.arduinolibraries.info

13. Available educational materials divided into forms of class activities (Author's compilation of didactic materials, e-learning materials, etc.)

14. Teachers implementing particular forms of education

Form of education	Name and surname
1. Project classes	Ocetkiewicz Tomasz, mgr inż.