Subject programme

1. Subject name / subject module: **Web Applications Programming**
2. Lecture language: **English**
3. The location of the subject in study plans:
   - Area or areas of the studies: **Computer Engineering and Mechatronics**
   - Degree of the studies: **1st degree studies**
   - Field or fields (implementation of effects standard): **Mechatronics**
4. Supervision of subject implementation:
   - The Institute / Another unit: **Institute of Informatics and Mechatronics**
   - The person responsible for the subject: **Skiba Grzegorz, 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:

Mode of study		SOW	ECTS	Laboratory work	SOW	ECTS	…	SOW	ECTS	…	SOW	ECTS	…	SOW	ECTS	…	SOW	ECTS	…	SOW	ECTS	Total ECTS
Full-time studies				24	51	3																3
Part-time studies																						
Credit rigor			Graded assignment																			

Teaching activities with the tutor — Form of classes

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 lectures	-
Participation in laboratory classes	24
Preparation to laboratory classes	12
Independent study of the subject	13
Preparation of final project	24
Participation in an exam / graded assignment	2
Total student workload (TSW)	75
ECTS credits	3
* Student's workload related to trainings	75
Student's workload in classes requiring direct participation of academic teachers	24

7. Implementation notes: recommended duration (semesters), recommended admission requirements, relations between the forms of classes:
   - Recommended admission requirements – 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			
Knowledge				
K_W04	**Student has knowledge of web applications for mechatronic systems developed using modern technologies, methods and tools, and knows how to apply this knowledge in practice.**	**Laboratory work**	**Inquiry methods**	**Student learning activities**
K_W06	**Student knows and understands, at an advanced level selected specific issues of structural and object-oriented programming in PHP language, MySQL databases and Web Servers as well as practical applications of this knowledge for developing custom content m**			
K_W10	**Student has detailed knowledge of developing dynamic websites and web applications targeted to different devices by using Responsive Web Design standards through the use of a front-end framework, has knowledge of PHP programming, database management and k**			
Skills				

K_U02	Student knows what methods and tools to use in order to solve mechatronics industry specific problems related to web applications, including content management systems.	Laboratory work	Inquiry methods	Student learning activities
K_U05	Student has experience and skills of using modern technologies and standards of web development, including database systems, front-end development and back-end language that are applicable in the mechatronics industry.			
K_U15	Student is able to choose appropriate development environment, frameworks, libraries and programming skills in order to solve a task related to Mechatronics.			

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

0% - 50%	ndst	**80% - 86%**	db
51% - 70%	dst	**87% - 93%**	db+
71% - 79%	dst+	**94% - 100%**	bdb

Activity	Grades	Calculation	To Final
Tasks done during laboratory classes	dst, db, bdb, db (3,4,5,4)	arithmetic mean (2,5,3,4)* 20%	0,8
Attendance	on 70% of all classes	70% * 5 -> 3,5 * 10%	0,35
Final project	bdb (5)	5 * 70%	3,5
Final result			4,65
Grade		4,65/5 = 93%	**Db+ (4.5)**

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

    (Laboratory work)

    1. Bootstrap as a front-end framework;

    2. Development of Content Management System with PHP language;

    3. JavaScript and jQuery library;

    4. WYSIWYG Editors;

    5. Developing a secure image upload;

    6. Log-in system - session, cookies and user accounts;

    7. Creating interactive tables with DataTables.

11. Required teaching aids:
    a. Lecture - multimedia projector
    b. Laboratory classes - specialist laboratory

12. Literature:
    a. Basic literature:
       - Brooks D. R.: Programming in HTML and PHP, Springer International Publishing AG, Cham, 2017
       - Bramer M.: Web Programming with PHP and MySQL, Springer International Publishing Switzerland, Cham, 2015.

- Bartholomew D.: MariaDB and MySQL Common Table Expressions and Window Functions Revealed, Apress, Berkeley, 2017

b. Supplementary literature:

- Kromann F. M.: PHP and MySQL Recipes, Apress, Berkeley, 2016.

- Hansen T. B., Lengstorf J., PHP for Absolute Beginners, Apress, Berkeley, 2014.

- Krause J.: Introducing Bootstrap 4, Apress, Berkeley, 2016

c. Internet sources:

- https://getbootstrap.com/docs/4.5/getting-started/introduction/, Bootstrap 4.5 documentation

- https://www.php.net/manual/en/, PHP language manual and documentation

- https://www.w3schools.com/, Online Web tutorials

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. Lecture	
2. Laboratory classes	Skiba Grzegorz, mgr inż.
3. Training	
4. Project classes	
5. Workshop classes	
6. Simulation game	
7. Language classes	