### Field of study
- **Computer Science**

### Degree level and programme type
- **Engineer's degree full-time programme**

### Specialization/ diploma path
- **---**

### Course name
- **Open Source Frameworks for Rapid Application Development**

### Course code
- **FCS-00019**

### Course type
- **obligatory**

### Forms and number of hours of tuition

<table>
<thead>
<tr>
<th>L</th>
<th>C</th>
<th>LC</th>
<th>P</th>
<th>SW</th>
<th>FW</th>
<th>S</th>
<th>Semester</th>
<th>No. of ECTS credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

### Entry requirements
- Object Oriented Programming (FCS-00012)

### Course objectives
- The student after completing the lecture and practice laboratory is able to design and implement an application based on Django framework and application based on Ruby on Rails framework.

### Course content
- **Lecture:**
  - Introduction to web frameworks Ruby on Rails and Django;
  - Fundamentals of Ruby language;
  - Fundamentals of Python language;
  - Construction and operation of applications built using Ruby on Rails and Django;
  - Administration of application;
  - Application performance; Deploying applications; Testing the applications;
  - Laboratories:
    - Exercising in Python language;
    - Exercising in Ruby language;
    - Implementation (design, implementation, testing, implementation) of a selected web application using Django or Ruby on Rails frameworks.

- **Laboratories:**
  - Exercises in Python language;
  - Exercises in Ruby language;
  - Implementation (design, implementation, testing, implementation) of a selected web application using Django or Ruby on Rails frameworks.

### Teaching methods
- lecture problem, programming.

### Assessment methods
- lecture - written test, practice laboratory - implementation of application

### Symbol of learning outcome

<table>
<thead>
<tr>
<th>Symbol of learning outcome</th>
<th>Learning outcomes</th>
<th>Reference to the learning outcomes for the field of study</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO1</td>
<td>has the knowledge about the methodology, techniques and programming tools used in frameworks. Know and understand the principles of software development solutions using frameworks and design patterns, in particular MVC pattern; Know techniques of creating web applications based on frameworks.</td>
<td>K_W06, K_W09</td>
</tr>
<tr>
<td>LO2</td>
<td>can design, implement and deploy the web information technology system based on framework. Can select appropriate tools for performing these processes.</td>
<td>K_U06, K_U09</td>
</tr>
<tr>
<td>LO3</td>
<td>presents, on the basis of materials prepared by themselves as well as acquired from different sources, using the newest information and communication techniques effects of their own work.</td>
<td>K_U14</td>
</tr>
<tr>
<td>LO4</td>
<td>can work in group, assuming different roles.</td>
<td>K_K03</td>
</tr>
</tbody>
</table>

### Methods of assessing the learning outcomes

<table>
<thead>
<tr>
<th>Symbol of learning outcome</th>
<th>Methods of assessing the learning outcomes</th>
<th>Type of tuition during which the outcome is assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO1</td>
<td>written exam</td>
<td>L</td>
</tr>
<tr>
<td>LO2</td>
<td>project and implementation of application, observation of classwork</td>
<td>Sw</td>
</tr>
<tr>
<td>LO3</td>
<td>evaluation of the presentation of application</td>
<td>Sw</td>
</tr>
<tr>
<td>LO4</td>
<td>project and implementation of application, observation of classwork</td>
<td>Sw</td>
</tr>
</tbody>
</table>

### Student workload (in hours)

<table>
<thead>
<tr>
<th>Calculation</th>
<th>No. of hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Attendance at lectures -</td>
<td>30</td>
</tr>
<tr>
<td>2 - Attendance at laboratories -</td>
<td>30</td>
</tr>
<tr>
<td>3 - Participation in student-teacher sessions -</td>
<td>5</td>
</tr>
<tr>
<td>4 - Preparation and design of projects -</td>
<td>65</td>
</tr>
<tr>
<td>5 - Preparation for the exam -</td>
<td>20</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

### Organisational unit conducting the course
- Software Department

### Author of the programme
- dr inż. Tomasz Łukaszuk

### Date of issuing the programme
- Feb. 18, 2022

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**L** - lecture, **C** - classes, **LC** - laboratory classes, **P** - project, **SW** - specialization workshop, **FW** - field work, **S** - seminar

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### Basic references
2. Django Software Foundation, Django documentation, online: https://docs.djangoproject.com
6. Ruby on Rails Guides, online: http://guides.rubyonrails.org

### Supplementary references