1. Course title: FIBER OPTICS

2. Course code FO


4. Level of studies: BA, BSc programme

5. Mode of studies: intramural studies

6. Field of study: Control, Electronic, And Information Engineering

7. Profile of studies:

8. Programme:

9. Semester:

10. Faculty teaching the course: Instytut Elektroniki, RAu3

11. Course instructor: dr inż. GrzegorzWieczorek

12. Course classification:

13. Course status: elective

14. Language of instruction: English

15. Pre-requisite qualifications: Course attendants are supposed to have general knowledge concerning basic electronic components and analog circuits. It is assumed that students passed the following courses: Physics, Introduction to Electronics.

16. Course objectives: The course aims objectives include having the students got acquainted structure, properties and parameters of fiber optics and basic optoelectronic components applied in fiber optic transmission systems. Discussed in the lecture are fiber optic applications in telecommunication, configurations and types of connections, transmission and multiplexing techniques.

17. Description of learning outcomes:

<table>
<thead>
<tr>
<th>Nr</th>
<th>Learning outcomes description</th>
<th>Method of assessment</th>
<th>Teaching methods</th>
<th>Learning outcomes reference code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Has got a basic understanding of the fiber optics structure and their properties</td>
<td>Final test</td>
<td>Lecture</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Has got a basic understanding of passive and active elements used in fiber-optic transmission systems</td>
<td>Final test</td>
<td>Lecture</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Able to establish basic parameters of the fiber optics and fiber optic connectors</td>
<td>Fulfilled laboratory exercises, final test</td>
<td>Laboratory</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Able to perform the fiber optic link budget</td>
<td>Fulfilled laboratory exercises, final test</td>
<td>Laboratory</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Able to establish parameters of the optoelectronic components used in simple fiber optic transmission system</td>
<td>Fulfilled laboratory exercises</td>
<td>Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

18. Teaching modes and hours

Lecture / BA /MA Seminar / Class / Project / Laboratory

Lecture -15 h, Laboratory -15 h

19. Syllabus description:

Lecture:


Laboratory:

1. Determination of numerical aperture and acceptance angle of the optical fibers.
2. Coupling characteristics of the optical fibers.
4. Optical Time Domain Reflectometer OTDR.
5. Optical fiber arc fusion splicing. Preparation and cutting of fiber.

21. Primary sources:

22. Secondary sources:

23. Total workload required to achieve learning outcomes

<table>
<thead>
<tr>
<th>Lp</th>
<th>Teaching mode</th>
<th>Contact hours / Student workload hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lecture</td>
<td>15/0</td>
</tr>
<tr>
<td>2</td>
<td>Classes</td>
<td>/</td>
</tr>
<tr>
<td>3</td>
<td>Laboratory</td>
<td>15/15</td>
</tr>
<tr>
<td>4</td>
<td>Project</td>
<td>/</td>
</tr>
<tr>
<td>5</td>
<td>BA/MA Seminar</td>
<td>/</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>5/10</td>
</tr>
<tr>
<td></td>
<td>Total number of hours</td>
<td>35/25</td>
</tr>
</tbody>
</table>

24. Total hours: 60

25. Number of ECTS credits: 2

26. Number of ECTS credits allocated for contact hours: 1

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 1

28. Comments:

Approved:

………………………………………………………………………………………………………………
(date, Instructor’s signature) 
………………………………………………………………………………………………………………
(date, the Director of the Faculty Unit signature)