

| <b>STUDY MODULE DESCRIPTION FORM</b>   |   |   |
|--|---|---|
| Name of the module/subject<br><b>Timber Structures</b>   |   | Code<br><b>1010115131010110247</b>  |
| Field of study<br><b>Civil Engineering Extramural Second-cycle</b>   | Profile of study (general academic, practical)<br><b>(brak)</b> | Year /Semester<br><b>2 / 3</b>  |
| Elective path/specialty<br><b>Structural Engineering</b>   | Subject offered in:<br><b>Polish</b>                            | Course (compulsory, elective)<br><b>obligatory</b>  |
| Cycle of study:<br><b>Second-cycle studies</b>   | Form of study (full-time,part-time)<br><b>part-time</b>         |   |
| No. of hours<br>Lecture: <b>20</b> Classes: <b>-</b> Laboratory: <b>-</b> Project/seminars: <b>10</b>  |   | No. of credits<br><b>5</b>  |
| Status of the course in the study program (Basic, major, other)<br><b>(brak)</b>   |   | (university-wide, from another field)<br><b>(brak)</b>  |
| Education areas and fields of science and art  |   | ECTS distribution (number and %)  |
| <b>Responsible for subject / lecturer:</b><br><br>Piotr Rapp<br>email: piotr.rapp@put.poznan.pl<br>tel. 61 6652094<br>Faculty of Civil and Environmental Engineering<br>60-965 Poznan, ul. Piotrowo 5  |   |   |
| <b>Prerequisites in terms of knowledge, skills and social competencies:</b>  |   |   |
| 1  | <b>Knowledge</b>  | The basic knowledge on structural mechanics and strength of materials.  |
| 2  | <b>Skills</b>   | Determining of the static model of a structure, determining of inner and support forces, determining of stresses and deflections in structural members. |
| 3  | <b>Social competencies</b>                                      | Team work ability.  |
| <b>Assumptions and objectives of the course:</b><br>The target of the course is to learn structure, elasticity and strength properties of wood, carpentry joints, timber fasteners (nails, bolts,screws, tooth-plate connectors, shear plates), glued joints, methods of wood structure designing, methods of joint designing, beam structures, purlin roof structures, collar-beam roof structures. |   |   |
| <b>Study outcomes and reference to the educational results for a field of study</b>  |   |   |
| <b>Knowledge:</b>  |   |   |
| 1. Knowing of specific properties f wood against a background of other materials - [-]<br>2. Knowing of thermal and moisture working conditions for a designed structure - [-]<br>3. Knowing of timber joint designing methods resulting from wood properties - [-]  |   |   |
| <b>Skills:</b>   |   |   |
| 1. Determining data, structural analysis and strength analysis of wood structures - [-]<br>2. Designing structure joints - [-]<br>3. Making technical drawings of wood structures - [-]  |   |   |
| <b>Social competencies:</b>  |   |   |
| 1. Team work ability. - [-]  |   |   |
| <b>Assessment methods of study outcomes</b>  |   |   |

|   |                             |             |
|---|-----------------------------|-------------|
| <p>Passing the course involves passing project seminars and lectures.<br/>         Passing project seminars involves preparation and oral project defence.<br/>         Passing lectures involves written final exam.<br/>         Exam marks scale in %:<br/>         90 very good (A)<br/>         85 good plus (B)<br/>         75 good (C)<br/>         65 satisfactory plus (D)<br/>         55 satisfactory (E)<br/>         below 54 unsatisfactory/ failed (F)</p>  |                             |             |
| <b>Course description</b>   |                             |             |
| <p>Wood as a building material. Structure, elasticity and strength properties of wood. Carpentry joints. Timber fasteners (nails, bolts, screws, toot-plate connectors, shear plates). Glued joints. Methods of wood structure designing. Methods of joint designing. Beam structures. Purlin roof structures. Collar-beam roof structures.</p>   |                             |             |
| <b>Basic bibliography:</b>  |                             |             |
| <ol style="list-style-type: none"> <li>1. Z. Lis, P. Rapp: Drewno i materiały drewnopochodne. Rozdział 10 w: Budownictwo ogólne, tom I, Arkady, Warszawa 2005, 2006.</li> <li>2. H. Neuhaus: Budownictwo drewniane. Polskie Wydawnictwo Techniczne, Rzeszów 2004.</li> <li>3. J. Kotwica: Konstrukcje drewniane w budownictwie tradycyjnym. Arkady, Warszawa 2004.</li> <li>4. Cz. Wajdzik: Więźby dachowe. Wyd. Akad. Roln. we Wrocławiu, Wrocław 2001.</li> <li>5. W. Nożyński: Przykłady obliczeń konstrukcji budowlanych z drewna. Wyd. 2. WSiP, Warszawa 2004.</li> <li>6. H. Zobel, T. Alkhafaji: Mosty drewniane. WKŁ, Warszawa 2006.</li> <li>7. Z. Lis, P. Rapp: Drewno i materiały drewnopochodne. Rozdział 10 w: Budownictwo ogólne, tom I, Arkady, Warszawa 2005, 2006.</li> <li>8. H. Neuhaus: Budownictwo drewniane. Polskie Wydawnictwo Techniczne, Rzeszów 2004.</li> <li>9. J. Kotwica: Konstrukcje drewniane w budownictwie tradycyjnym. Arkady, Warszawa 2004.</li> <li>10. Cz. Wajdzik: Więźby dachowe. Wyd. Akad. Roln. we Wrocławiu, Wrocław 2001.</li> <li>11. W. Nożyński: Przykłady obliczeń konstrukcji budowlanych z drewna. Wyd. 2. WSiP, Warszawa 2004.</li> <li>12. H. Zobel, T. Alkhafaji: Mosty drewniane. WKŁ, Warszawa 2006.</li> </ol> |                             |             |
| <b>Additional bibliography:</b>   |                             |             |
| <ol style="list-style-type: none"> <li>1. W. Michniewicz: Konstrukcje drewniane. Arkady, Warszawa 1958.</li> <li>2. Z. Dziarnowski, W. Michniewicz: Konstrukcje z drewna i materiałów drewnopochodnych, Arkady, Warszawa 1974.</li> <li>3. Z. Gołębiowski: Konstrukcje drewniane. PWN, Warszawa 1978.</li> <li>4. W. Michniewicz: Konstrukcje drewniane. Arkady, Warszawa 1958.</li> <li>5. Z. Dziarnowski, W. Michniewicz: Konstrukcje z drewna i materiałów drewnopochodnych, Arkady, Warszawa 1974.</li> <li>6. Z. Gołębiowski: Konstrukcje drewniane. PWN, Warszawa 1978.</li> </ol>  |                             |             |
| <b>Result of average student's workload</b>   |                             |             |
| <b>Activity</b>   | <b>Time (working hours)</b> |             |
| 1. Preparation for passing lectures   | 30                          |             |
| 2. Making projects  | 95                          |             |
| <b>Student's workload</b>   |                             |             |
| <b>Source of workload</b>   | <b>hours</b>                | <b>ECTS</b> |
| Total workload  | 125                         | 5           |
| Contact hours   | 30                          | 0           |
| Practical activities  | 0                           | 0           |