## MODULE SPECIFICATION

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|---|---|
| Module code | |
| Module title in Polish | **Remonty budowli** |
| Module title in English | **Renovations of Structures** |
| Module running from the academic year | **2016/2017** |

## A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

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|---|---|
| Field of study | **Civil Engineering** |
| Level of qualification | **First cycle**<br>*(first cycle, second cycle)* |
| Studies profile | **Academic**<br>(*academic/practical)* |
| Mode of study | **Full-time**<br>*(full-time / part-time)* |
| Specialism | |
| Organisational unit responsible for module delivery | **The Department of Transportation Engineering** |
| Module co-ordinator | **Andrzej Kroner, PhD** |
| Approved by | **Marek Iwański, Professor** |

## B. MODULE OVERVIEW

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|---|---|
| Module type | **Core module**<br>(*core/programme-specific/elective HES**) |
| Module status | **Compulsory module**<br>*(compulsory / non-compulsory)* |
| Language of module delivery | **English** |
| Semester in the programme of study in which the module is taught | **Semester 4** |
| Semester in the academic year in which the module is taught | **Summer semester**<br>*(winter / summer)* |
| Pre-requisites | **None**<br>(*module code/module title, where appropriate)* |
| Examination required | **No**<br>*(yes / no)* |
| ECTS credits | **3** |

| **Mode of instruction** | **lectures** | **classes** | **laboratories** | **project** | **others** |
|---|---|---|---|---|---|
| **Total hours per semester** | **30** | | **15** | | |

* elective HES − elective modules in the Humanities and Economic and Social Sciences

## C. LEARNING OUTCOMES AND ASSESSMENT METHODS

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| **Module aims** | The aim of the module is to acquire skills and competences as regards assessing a technical condition of constructional elements concerning residential and public utility buildings erected with traditional methods; student are also familiarised with the application of determined method of repairing and/or reinforcing them. |

| Module outcome code | Module learning outcomes | Mode of instruction *(l/c/lab/p/ others)* | Corresponding programme outcome code | Corresponding discipline-specific outcome code |
|---|---|---|---|---|
| W_01 | A student knows the fundamentals of constructing the structures and the elements of timber, masonry, and reinforced concrete structures. | l/p | B_W09 | T1A_W03<br>T1A_W07 |
| W_02 | A student is knowledgeable about general civil structure as well as the technologies of constructional works. | l/p | B_W12<br>B_W13 | T1A_W02<br>T1A_W03<br>T1A_W07 |
| U_01 | A student can classify building structures as well as load bearing structures and structure elements. | l/p | B_U02 | T1A_U11<br>T1A_U13 |
| U_02 | A student is able to compare loads interacting on building structures. | p | B_U03 | T1A_U14<br>T1A_U16 |
| U_03 | A student can use basic norms and designing guideline, making and exploiting building structures and their elements. | l/p | B_U13 | T1A_U05<br>T1A_U07 |
| U_04 | A student can assess technical condition of constructional elements of buildings; a student can also indicate the methods of repairing or reinforcing them. | l/p | B_U25 | T1A_U09<br>T1A_U13<br>T1A_U15 |
| K_01 | A student can work individually and co-operate in a team on the assigned task. | p | B_K01 | T1A_K01<br>T1A_K03 |
| K_02 | A student is responsible for the reliability of the presented results of his/her work. | p | B_K02 | T1A_K05<br>T1A_K07 |
| K_03 | A student formulates conclusions and describes the results of his/her own work. | p | B_K04 | T1A_K01<br>T1A_K07 |

## Module content:

1. Topics to be covered in the lectures

| No. | Topics | Module outcome code |
|---|---|---|
| 1 | The causes and types of damages in buildings with traditional structure. | W_01<br>U_01 |
| 2 | Reinforcing foundation soil (exchanging or solidifying soil, injections with electroosmotic and electrochemical methods). | W_02<br>U_04 |
| 3-5 | Foundation repairs and reinforcements (removing foundation loads prior to repairing and/or reinforcement; reinforcing masonry and concrete foundations; reinforcing foundations by supporting them with stilts; repairing building insulations). | W_02<br>U_01<br>U_02<br>U_04 |
| 6-8 | Repairs and reinforcements concerning walls (repairs concerning wall damages, injections of cracks; re-bricking walls; reinforcing external walls; reinforcing the connections of walls). | W_01<br>W_02<br>U_03 |
| 9 | Reinforcing, removing load and rebuilding headers. | W_02<br>U_04 |
| 10 | Repairing and reinforcing wall pillars and piles. | W_02<br>U_03<br>U_04 |
| 11-12 | Repairs and reinforcements concerning timber, ceramic, and reinforced | W_02 |

| | | |
|---|---|---|
| | concrete ceilings. | U_02<br>U_04 |
| 13 | The repairs of damaged rooftops; reinforcing timber roof structures. | W_02<br>U_04 |
| 14 | Demolition works. | W_01<br>W_02 |
| 15 | Constructional inventory. The methods of examining damages in buildings. | W_02<br>U_01 |

2. Topics to be covered in the classes
3. Topics to be covered in the laboratories
4. Topics to be covered in the projects

| No. | Topics | Module outcome code |
|---|---|---|
| 1 | Introduction to the subject and a project assignment (reinforcing masonry piles with casing, e.g. steel, reinforced mortar and reinforced concrete). | W_02<br>U_01<br>K_01 |
| 2 | Sample reinforcement of a pile with a steel casing. | W_02<br>U_02<br>K_01 |
| 3 | Sample reinforcement of a pile with a reinforced concrete casing. | W_02<br>U_02<br>K_01 |
| 4 | Checking the load bearing capability of steel and ceramic ceilings. | W_01<br>W_02<br>U_02<br>U_03<br>K_01<br>K_02 |
| 5 | Reinforcing bent steel beams and ceramic Klein slabs with the growth of variable loads. | W_02<br>U_02<br>U_03<br>K_01<br>K_02 |

## Assessment methods

| Module outcome code | Assessment methods<br>*(Method of assessment; for module skills − reference to specific project, laboratory and similar tasks)* |
|---|---|
| W_01 | A project |
| W_02 | A test |
| U_01 | A test |
| U_02 | A project |
| U_03 | A project |
| U_04 | A test |
| K_01 | A test and a project |
| K_02 | A test and a project |
| K_03 | A project |

## C. STUDENT LEARNING ACTIVITIES

| ECTS summary | | |
|---|---|---|
| | **Type of learning activity** | **Study time/ credits** |
| 1 | Contact hours: participation in lectures | **30** |
| 2 | Contact hours: participation in classes | |
| 3 | Contact hours: participation in laboratories | |
| 4 | Contact hours: attendance at office hours (2-3 appointments per semester) | **2** |
| 5 | Contact hours: participation in project-based classes | **15** |
| 6 | Contact hours: meetings with a project module leader | **3** |
| 7 | Contact hours: attendance at an examination | |
| 8 | | |
| 9 | **Number of contact hours** | **50** *(total)* |
| 10 | **Number of ECTS credits for contact hours** *(1 ECTS credit =25-30 hours of study time)* | **2** |
| 11 | Private study hours: background reading for lectures | **5** |
| 12 | Private study hours: preparation for classes | |
| 13 | Private study hours: preparation for tests | **5** |
| 14 | Private study hours: preparation for laboratories | |
| 15 | Private study hours: writing reports | |
| 16 | Private study hours: preparation for a final test in laboratories | |
| 17 | Private study hours: preparation of a project/a design specification | **15** |
| 18 | Private study hours: preparation for an examination | |
| 19 | | |
| 20 | **Number of private study hours** | **25** *(total)* |
| 21 | **Number of ECTS credits for private study hours** *(1 ECTS credit =25-30 hours of study time)* | **1** |
| 22 | **Total study time** | **75** |
| 23 | **Total ECTS credits for the module** *(1 ECTS credit =25-30 hours of study time)* | **3** |
| 24 | **Number of practice-based hours** *Total practice-based hours* | **35** |
| 25 | **Number of ECTS credits for practice-based hours** *(1 ECTS credit =25-30 hours of study time)* | **1.4** |