Silesian University of Technology Civil Engineering Faculty

<u>1. Course number and name</u>

RB-S1-18-S12-19, Masonry & Timber Structures III

- 2. Credits and contact hours*
 - 1 ECTS, lectures: 8 hours**, classes: 2 hours**, project: 5 hours**

3. Instructor's or course coordinator's name

Marcin Kozłowski PhD, DSc/University Professor

4. Text book, title, author, and year

- Kermani A., "Structural Timber Design", Wiley-Blackwell, London, 1999
- "Design of timber structures Volume 1. Structural aspects of timber construction", Swedish Wood, 2011
- "Design of timber structures Volume 2. Rules and formulas according to Eurocode 5 and EKS 9", Swedish Wood, 2011
- "Design of timber structures Volume 3. 14 calculated practical examples with solutions", Swedish Wood, 2011

a. other supplemental materials

- EN 1990 Eurocode: Basis of structural design
- EN 1991 Eurocode 1: Actions on structures
- EN 1995 Eurocode 5: Design of timber structures

5. Specific course information

a. brief description of the content of the course (catalog description)

Lectures:

Introduction to the design of timber structures, code requirements, static schemes, the specifics of the material. Timber structural systems - the formulation, design and calculation. Connections in timber structures, dimensioning of the connections.

Classes:

Discussion of the timber connections. The project will be discussed during the exercise. <u>Project:</u>

The project includes the design of selected types of connections in timber structures. As a part of the project, a construction drawing of the connection is carried out.

b. prerequisites or co-requisites

Structures of Buildings, Mechanics of Buildings

c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program

Required.

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6. Specific goals for the course

<u>a. specific outcomes of instruction, ex. The student will be able to explain the significance</u> of current research about a particular topic

The student can:

- use their knowledge formulate and solve complex and unusual problems,
- explain selected processes and chemical phenomena affecting the manufacturing technology and durability of materials and building components
- plan and perform simple experiments leading to the assessment of mechanical and physical properties and durability of building materials
- read architectural, construction and geodetic drawings and prepare graphic documentation in the environment of selected CAD and BIM software
- select appropriately sources and information
- select and apply appropriate methods and tools, including advanced information and communication technologies
- evaluate critically knowledge and recognize of knowledge in solving cognitive and practical problems
- formulate expert opinions on technical and technological processes carried out in the construction industry

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

K1A_W05, K1A_W06, K1A_U02, K1A_U04

7. Brief list of topics to be covered

The main course objective is to acquaint students with the principles of structural design of selected types of timber structures. Moreover, the course aims at providing students with practical knowledge regarding code requirements, constructing and analytical calculations of connections in timber structures. The course covers the area of timber structures and connections of timber elements. It includes information and discussion on the following areas: code requirements, static schemes, specifics of the material. The course also provides design examples of dowel connections using nails, bolts and joining plates made of different materials.

**-per semester

^{*-} Consultations were not included in the contact hours