



1. Course number and name

RB-S1-19-W3E-8F, Urban, Industrial and Transportation Structures

2. Credits and contact hours*

2 ECTS, lectures: 15 hours**, project 10 hours**

3. Instructor's or course coordinator's name

Leszek Szojda, CEng, MSc, PhD, DSc, Prof.

4. Text book, title, author, and year

- Varyani U. H.: Structural Design of Multi Storeyed Building – Standard Publication-Dehli; 2014
- Zalka K.: Structural Analysis of Multi-Storey Buildings – CRC Press; 2020
- Jürgen A., Hausmann K., Jüttner F.: Industrial Buildings (Design Manual) – Birkhäuser Architecture; 2004
- El-Reedy M. A.: Construction Management and Design of Industrial Concrete and Steel Structures – CRC Press; 2010
- Weyer J., Baragaño S.: Industrial building Planning and Design – Design Media Publishing (UK) Limited; 2014
- Unsworth J. F.: Design and Construction of Modern Steel Railway Bridges – CRC Press; 2014
- Mann C.: Prestressed Concrete Bridges – Springer, Basel; 2011
- Neufert E. and Neufert P.: Architects' Data, 4th ed. Wiley-Blackwell, 2012

a. other supplemental materials

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5. Specific course information

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

Lectures:

Urban Structures - overview of structures in buildings; introduction to contemporary concepts in the design of modern cities.

Industrial Structures - general information about mines, power plants, industry of settings materials, car parks and industrial halls.

Transportation Structures - overview of structures used in ground transportation, air transportation and water transportation infrastructure.

b. prerequisites or co-requisites

Not required



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

Required.

6. Specific goals for the course

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

The student knows:

- about the projected impact of buildings on the environment

The student can:

- make a classification of urban, industrial and transportation structures due to their own structures

The student is able to:

- aware of the necessity and can individually deepen the provided knowledge in the technical literature

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_U01, K1A_U02, K1A_U04

7. Brief list of topics to be covered

- Urban Structures - overview of structures in buildings: from single-family housing, through high-rise buildings and skyscrapers to open-plan, large-span hall buildings; introduction to contemporary concepts in the design of modern cities: sustainability in construction industry, smart cities – smart building and smart structures, biomimicry in civil engineering, Building Information Modelling.
- Industrial Structures - general overview of industrial facilities principles, description of basic concepts connected to surface and underground mines as well as offshore platforms. Information about power plants: conventional, nuclear and hydro. General overview about cement plants, ironworks and brickyards. Basic information about car park and industrial hall.
- Transportation structures - overview of structures used in ground transportation (bridges, tunnels, culverts, retaining walls), air transportation (design of commercial aerodromes) and water transportation (natural vs artificial waterways and structures in navigation infrastructure, design of passenger and freight port).

*- Consultations were not included in the contact hours

** -per semester