COURSE DESCRIPTION CARD - SYLLABUS

Course name
Introduction to civil construction design [S1Bud1>WdPwB]

Course

Field of study
Civil Engineering

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
20

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

KNOWLEDGE: Student beginning this course should have knowledge on high school level from mathematics, physics, chemistry and environment (natural, economic, judiciary). SKILLS: Student should be able to analyse, synthetize and interpret acquired information. COMPETENCIES: Student should be conscious about a need to work for common good, to reach goals, both individual and social. Student should be ready to cooperate with other students and the teacher, should avoid actions disturbing other student's learning.

Course objective

Teaching students a general overview about: - topics and problems they meet during the study course, - basics of civil construction, - dependencies between different construction specialisations, showing common elements between these specialisations.

Course-related learning outcomes

KNOWLEDGE: Student:
1. Can distinguish basic types of construction objects, knows their similarities and differences.
SKILLS: Student:

1. Has knowledge about specialisations of civil engineering and their characteristics;
2. Has basic knowledge about social, economical and ecological dependencies of a construction process;
3. Has basic knowledge about hierarchy of legal building codes.
SOCIAL COMPETENCES: Student:
1. Has beginning consciousness about dangers and perils present in a construction process;
2. Is conscious about influence of construction on social and natural environment.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The acquired knowledge from the lectures is verified by a written colloquium done on the last lecture. The colloquium has a form of a multiple choice test with penalty for wrong answers, and can be supplemented by questions of "list with a short description" type. With a small number of students, if teacher permits, the form may be changed into an oral colloquium - details should be given at the first lecture. To pass the colloquium, students should acquire at least 50% of points. Activity during the lectures and in Ekursy system may be taken into account during the colloquium's score evaluation.
Topics for the colloquium will be given to students during the first lecture or by email.
Grade scale: 50-60% 3,0; 60-70% 3,5; 70-80% 4,0; 80-90% 4,5; 90-100% 5,0.

Programme content

The module's programme covers the following topics:
1. Present in a preliminary way topics of building construction, including similarities between different specialisations;
2. Present programme of Ist level building construction studies;
3. Present specialisations of building construction: construction, technological, transportation (roads, railways, bridges);
4. Hint on interaction with corresponding specialisations, such as urban design, traffic engineering, environment protection.

Course topics

Programme of the lecture covers preliminary presentation of the following topics:
1. Essence of civil engineering;
2. Criteria for evaluation of a building’s quality, influence of construction on environment;
3. Construction investment process and building’s life cycle;
4. Technology and organisation of construction process;
5. Program of first cycle of civil engineering studies;
6. Legal codes in civil engineering and their hierarchy;
7. Abridged description of civil engineering specialisations: construction, work technology and organisation, construction of car roads and railroads, construction of bridges;
8. Interaction with neighbouring specialisations n example of urbanism, traffic engineering and universal design;
9. Advantages and dangers of using intelligent solutions in civil engineering.

Teaching methods

Informative lecture including elements of a conversation lecture, utilising a multimedia presentation with an occasional use of a blackboard.

Bibliography

Basic:
1. Basiewicz T., Gołaszewski A., Rudziński L.: Infrastruktura transportu. Politechnika Warszawska, Warszawa 2002.
2. Biedrowski Z: Poradnik wzmocnienia podłoża gruntowego dróg kolejowych. Politechnika Poznańska, Instytut Inżynierii Lądowej, Poznań 1986.
3. Bogdaniuk B., Towpik K.: Budowa, modernizacja i naprawy dróg kolejowych. KOW, Warszawa 2010.
4. Esveld C.: Modern Railway Track. Second Edition, Delft, 2001.
5. Gawęcki A.: Mechanika materiałów i konstrukcji prętowych. Politechnika Poznańska, Poznań, 1998.
6. Klemm P. (red.): Budownictwo ogólne t.2, Arkady 2005.

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9. Madaj A., Wołowicki W.: Podstawy projektowania budowli mostowych. WKiŁ, Warszawa 2010.
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12. Stawski B.: Konstrukcje murowe. Naprawy i wzmocnienia. Polcen, Warszawa 2014.
13. Wiłun Z.: Zarys geotechniki. WKiŁ, Warszawa 2012.
14. Żenczykowski W.: Budownictwo ogólne, t. 1. Warszawa, Arkady 1992.

Additional:

1. Czarnecki Wł.: Projektowanie miast i osiedli. WKiŁ, Warszawa.
2. Datka S., Suchorzewski W., Tracz M.: Inżynieria ruchu. WKiŁ, Warszawa 2008.
3. Jacyna M., Wasiak M.: Zastosowanie wielokryterialnej oceny do wyboru wariantu modernizacji elementów infrastruktury kolejowej. Problemy Kolejnictwa, Zeszyt nr 146, 2008.
4. Jeż J.: Biogeotechnika, Wyd. PP, Poznań 2008.
5. Kubik J., Mielniczuk J.: Mechanika techniczna dla inżynierów. Wydawnictwo Uniwersytetu Kazimierza Wielkiego, Bydgoszcz, 2017.
6. Lewinowski Cz., Zimnoch St.: Ogólne zasady projektowania robót ziemnych dróg samochodowych i kolejowych. PWN, Warszawa, 1987.
7. Łoś M.: Wpływ temperatury na pracę bezstykowego toru kolejowego. WKiŁ, Warszawa, 1987.
8. Piłat J., Radziszewski P.: Nawierzchnie asfaltowe. WKiŁ, Warszawa 2010.
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10. Sancewicz St.: Nawierzchnia kolejowa. PKP Polskie Linie Kolejowe S.A., Warszawa, 2010.
11. Sturzbecher K.: Oddziaływania wyjątkowe w mostach drogowych oraz oddziaływania wiatrem i oddziaływania termiczne wg PN-EN. Archiwum Instytutu Inżynierii Lądowej, Nr 24, Poznań, 2017.
12. Sysak J. (red.): Drogi kolejowe. PWN, Warszawa 1986.
13. Skrypt internetowy, Mechanika budowli. www.ikb.put.poznan.pl/node/49.
14. Ustawa Prawo budowlane.
15. Rozporządzenie Ministra Infrastruktury w sprawie warunków technicznych jakim powinny odpowiadać budynki i ich usytuowanie.
16. Rozporządzenie Ministra Infrastruktury w sprawie przepisów techniczno-budowlanych dotyczących dróg publicznych.
17. Rozporządzenie Ministra Infrastruktury w sprawie warunków technicznych jakim powinny odpowiadać budowle kolejowe i ich usytuowanie.
18. EN 13803-1:2010 Railway applications - Track - Track alignment design parameters – Track gauges 1435 mm and wider - Part 1: Plain line.
19. Id-1(D1): Warunki techniczne utrzymania nawierzchni na liniach kolejowych. PKP PLK, S.A. Warszawa, 2005.
20. Id-2(D2): Warunki techniczne dla kolejowych obiektów inżynieryjnych. PKP PLK, S.A. Warszawa, 2005.
21. Id-3: Warunki techniczne utrzymania podtorza kolejowego. PKP PLK, S.A. Warszawa, 2009.
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23. PN-EN 1990. Eurokod. Podstawy projektowania konstrukcji. PKN, Warszawa, 2004.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	20	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00