



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Universal design in crisis management [S2IBiJ1-BiZK>PUwZK]

### Course

Field of study

Safety and Quality Engineering

Year/Semester

2/3

Area of study (specialization)

Safety and Crisis Management

Profile of study

general academic

Level of study

second-cycle

Course offered in

Polish

Form of study

full-time

Requirements

elective

### Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

15

Projects/seminars

15

### Number of credit points

3,00

### Coordinators

dr hab. inż. Marcin Butlewski prof. PP  
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### Lecturers

### Prerequisites

General knowledge of ergonomic design and ergonomics specifically related to the specific needs of people.

### Course objective

To familiarize students with the principles of universal design in the context of safety and crisis management, and thus how to solve the problem of diversity of human capabilities in crisis situations.

### Course-related learning outcomes

Knowledge:

1. Student has in-depth knowledge of mechanisms of functioning of complex socio-technical systems characteristic for mechanical engineering concerning universal design [K2\_W02].
2. Student has a structured and theoretically grounded knowledge of computer-aided design and decision-making systems in the areas of safety engineering, quality engineering, ergonomics and occupational safety and emergency management pertaining to universal design [K2\_W07].
3. Student has a structured and theoretically grounded knowledge of quality and environmental management, systems approach to management, systems integration and auditing of management

systems in organisations concerning universal design [K2\_W08].

Skills:

1. Student is able to design, in a team, using appropriately selected means, methods and techniques, selected elements of safety, quality and environmental systems in organisations concerning universal design [K2\_U05].
2. Student can fluently use a foreign language at a minimum B2+ level of the Common European Framework of Reference for Languages, using specialist terminology specific to safety management issues in organisations concerning universal design [K2\_U12].

Social competences:

1. Student is critical of his/her knowledge, is ready to consult experts when solving cognitive and practical problems related to safety management in organisations using universal design principles [K2\_K01].
2. Student correctly identifies and resolves dilemmas related to safety in a broad sense, understands the necessity of making the society aware of the need to shape safety in various areas of organisation functioning concerning universal design [K2\_K02].

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative evaluation:

- a) in terms of exercises: ongoing testing of knowledge and skills during exercises;
- b) in terms of lectures: on the basis of discussion of the material learned in previous lectures;
- c) in terms of the project: ongoing evaluation of the degree of completion of individual project tasks;

Summative evaluation:

- a) in terms of exercises: on the basis of the results of the average of the partial marks of the formative assessment;
- b) in terms of lectures: knowledge test;
- c) in terms of the project evaluation of the way of describing the way of solving the design problem posed and the degree of completion of individual steps.

Grading system (passing threshold: 51% points):

Points Grade:

0 - 50 Fail (2)

51 - 59 Satisfactory (3)

60 - 69 More than satisfactory but less than good (3+)

70 - 79 Good (4)

80 - 89 Very good (4+)

90 - 100 Excellent (5)

### Programme content

Theories of universal design, Design for all, inclusive design, persuasive design. Crisis situations in standardization covered by universal design. Universal design in legal terms in a crisis situation. Evacuation of people with disabilities. Systems supporting universal design in crisis situations. Technical solutions to assist people with special needs in emergency situations and their evaluation.

### Course topics

- Universal design theories
- Design for all
- Inclusive design
- Persuasive design
- Standardisation crises covered by universal design
- Universal design in legal terms in a crisis situation
- Evacuation of people with disabilities
- Systems supporting universal design in crisis situations
- Technical solutions to assist people with special needs in crisis situations and their assessment
- Norms and standards in universal design
- Impact of universal design on society

- Technologies to support universal design
- The role of institutions and organisations in promoting universal design
- Application of universal design tools and methods in practice
- Case studies of the application of universal design in emergency situations
- Challenges of implementing universal design
- Education and training in universal design
- Examples of best practice in universal design
- International cooperation in the field of universal design
- Research and development in the field of universal design
- Adapting public spaces to the needs of people with disabilities
- Strategies to minimise risk in universal design
- Integration of universal design with other engineering and architectural disciplines
- Mechanisms for evaluating and monitoring the effectiveness of universal design solutions
- Impact of legislation on the development of universal design

## Teaching methods

Lectures with multimedia presentation; task exercises on topics related to lectures and project. The lecture is conducted using distance learning techniques in a synchronous mode. Acceptable platforms: eMeeting, Zoom, Microsoft Teams.

## Bibliography

Basic:

1. Erlandson, R. F. (2007). Universal and accessible design for products, services, and processes. CRC Press.
2. Butlewski M., Projektowanie ergonomiczne wobec dynamiki deficytu zasobów ludzkich, Politechnika Poznańska 2018, ISBN: 978-83-7775-506-8; 255 stron.

Additional:

1. Butlewski, M., & Jabłońska, J. (2014, January). Ergonomic model of hotel service quality for the elderly and people with disabilities. In Occupational Safety and Hygiene II-Selected Extended and Revised Contributions from the International Symposium Occupational Safety and Hygiene, SHO 2014 (pp. 633-638).
2. Butlewski, M., Kalemba, A., & Sydor, M. (2014). Wymagania dla miejskich systemów transportowych wobec rozwoju sprzętu dla osób z niepełnosprawnością. Logistyka, 6, 14046-14055.
3. Zabłocki, M., Butlewski, M., & Sydor, M. (2017). Ergonomiczne rozwiązania techniczne dla osób z niepełnosprawnościami stosowane w transporcie zbiorowym. Bezpieczeństwo Pracy: nauka i praktyka, 15-19.
4. Gorgolewski, Ł. (2019). Dostępność budynków dla osób ze szczególnymi potrzebami-usuwanie barier architektonicznych w instalacjach elektrycznych. Przegląd Budowlany, 90.

## Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00