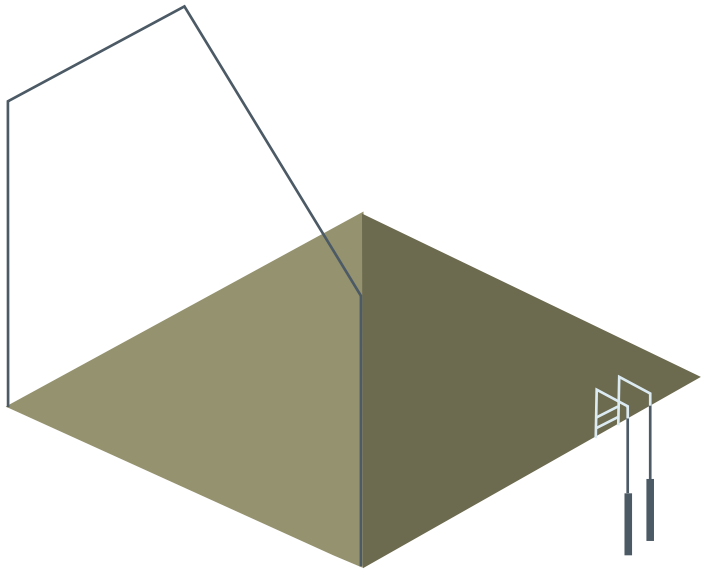
HERSUS

Enhancing of Heritage Awareness and Sustainability of Built Environment in Architectural and Urban Design Higher Education

BOOK OF COURSES

IMAGINING PROGRAM for Sustainability of the Built Environment and Heritage Awareness



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INTELECTUAL OUTPUT 5
2023

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TITLE
Statements for Teaching through Design for Sustainability of the Built Environment and Heritage Awareness

PUBLISHER
University of Belgrade, Faculty of Architecture

DESIGN LAYOUT
Aleksandra Milovanović, Aleksandra Đorđević, Ana Zorić, Mladen Pešić

First edition, 2023

ISBN 978-86-7924-327-0

Co-funded by the Erasmus+ Programme of the European Union

IO5 BOOK OF COURSES

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This result has been produced as a part of IO5 INTELECTUAL OUTPUT within HERSUS project within Erasmus + Strategic Partnerships for higher education. The creation of these resources has been co-funded under grant no. 2020-1-RS01-KA203-065407 (funding period 2020-2023; total grant 246.922,00 €). This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

HERSUS

Content

Note:
The courses were prepared by individual author/group of authors in relation to their professional expertise and backgrounds and in relation to values, themes and framework defined on the consortium level.

Università Iuav
di Venezia

Iuav

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prepared by Emanuela Sorbo and
Gianluca Spironelli

SC09

specializations

book of courses

DIGITAL HUMANITIES AND DIGITAL KNOWLEDGE FOR THE PRESERVATION OF CULTURAL HERITAGE.

COURSE ID CARD

semester	1-3
ECTS	3
status	elective

ACTIVE TEACHING CLASSES

Lectures	4
Exercises	2
OFL	
SRW	
Other	

COURSE TYPES

- Design Studio
- Intensive Workshop
- ▶ Theory Course
- Seminar
- ▶ Laboratory work
- Research Thesis
- ▶ Field Work
- Internship Practical training
- Other

FORMS OF TEACHING

- ▶ Individual work
- ▶ Group work
- Supervision
- Master class

Expected Prior Knowledge

To be eligible for admission to this course, students are expected to have acquired basic knowledge during the architecture-related bachelor studies (basic knowledge of survey methodologies and 3d modelling).

Course objectives

The main educational goal of the course is to achieve students' autonomy in representing the information associated in a built cultural heritage throughout its life cycle. During the course, students will acquire the technical skills and the cultural tools for developing an informative model system that concerns an interpretive, material and constructive reading of a building to characterize its conservation status within a preservation horizon. Lectures and applied exercises will stimulate students' multidisciplinary investigation attitude through three-dimensional representation. Students will deal with a built case study of abandoned buildings or ruins considering three fundamental moments: the historical-critical analysis of the sources, the evaluation of the conservation status through surveys and the identification of possible design actions. The proposed activity will provide the students with the tools to develop an applied methodology for future professional activities.

Course ilustration.

RELATION TO IO3 STATEMENTS

NOTIONS
- Cultural Heritage
- Cultural and Collective Memory

HERITAGE TYPES
- Modern Heritage
- Industrial Heritage
- Vernacular Heritage
- Monumental Heritage
- Emerging Heritage
- Archaeological heritage
- Military Heritage

DESIGN APPROACHES
- Whole-Lifecycle Design

DESIGN ACTIONS
- Preventive Conservation
- Conservation
- Restoration
- Consolidation
- Heritage Management MG

TOOLS
- Photogrammetry
- Topographical Surveys
- Data Logger
- Laser Scanning
- As-Built / As-Found Recording
- Mapping, Documenting and Cataloguing
- Historic Building Information Modelling - HBIM
- Conservation Status Evaluation
- Digitalization of Heritage

Course Syllabus

The course proposes a cultural and operative approach to defining a knowledge system for the conse vation status of a built Cultural Heritage.

According to specific on ologies and semantic discretization processes, students will be able to construct a digital transposition of the built heritage to time. Starting from the built heritage model, they will connect historical information to the elements of the building and recreate the historical transformation. The final output of the course will be an as-built model deferred over time and based on a critical reading of the character of the building (process scan-to-bim).

The students will deal with theoretical and critical thinking focused on evaluating existing architecture's conservation status (from the perspective of conservation design outlines). The applied component of the course will be developed using Autodesk Revit, BIMvision, and CloudCompare software. The examination will consist of an interview based on the assignments produced during the course.

Specificall , the teaching activities will focus on two levels:

- the introduction to an operative methodology based on the critical approach and a flexible theo etical framework;

- the drawing of architecture as a common language across cultures and disciplines.

TEACHING METHODS

- Technical drawings
- Analytic drawings (diagrams)
- 3D modelling
- Physical modelling
- Case Studies
- Animation
- Simulation
- Rendering
- Specific internationa bibliography

Demonstration of the syllabus coherence with the course objectives

Through the transmission of theoretical knowledge and the work on an applied case study, the students will be able to develop a critical awareness of the digital tools in conservation design strategies.

The proposed activities on cultural heritage interpretation help students to acquire a method of analysis concerning cultural heritage preservation and transmission. Specificall , the teaching activities will deal with a critical approach to the restora-tion theory and the digitalisation tools to develop a common graphic language for architecture across cultures and disciplines. Then, the critical approach and the flexible theoretical framework of the study method provide students with an applicative methodology for an analysis of the built heritage and allow the student to insert their creativity in the interpretation and design strategies.

TEACHING FORMATS

- Design Project
- Presentation
- Technical report
- Research paper
- Essay
- Written Exam
- Oral Exam
- Other

Demonstration of the teaching methodologies coherence with the course objectives

The course includes:
• Ex-cathedra lectures.
• Laboratory-type revision activities.
• Workshop sessions.
• Seminars with invited lecturers

Those teaching activities will promote a methodology of study and analysis for a critical approach to cultural heritage.
The presence of operative moments of dialogue through seminars and thematic workshop sessions aimed at defining an interdisciplinary and cultural attitude on the topics of built cultural heritage. Finally, the introduction of scheduled presentations to promote students' interaction with different points of view on the same topic of investigation and a critical discussion on the progress of the work within the course.

ASSESSMENT METHODS

- [x] Technical drawings
- [ ] Analytic drawings (diagrams)
- [x] 3D modelling
- [ ] Physical modelling
- [x] Case Studies
- [ ] Animation
- [x] Simulation
- [ ] Rendering
- [ ] Other

ASSESSMENT FORMATS

- [ ] Design Project
- [x] Presentation
- [x] Technical report
- [ ] Research paper
- [ ] Essay
- [ ] Written Exam
- [x] Oral Exam
- [ ] Other

COURSE STRUCTURE

1	**Introduction lecture** Course introduction - Case study presentation (seminar with invited lecturers)
2	**Practical skills 1** Data systematization - From geometrical models to constructive models. **Key Challenges 1** The role of historical-critical analysis of the sources / **Assignment 1** Individual critics
3	**Key Challenges 2** Management systems and tools for preventive conservation **Assignment 2** Workshop sessions. Critical reading of the character of the building.
4	**Pre examination activity 1** Collective critics
5	**Practical skills 2** Data query and interoperability **Key Challenges 3** The IFC schema
6	**Pre examination activity 2** Assignment discussion

GC1	1.1
	1.2
	1.3
GC2	2.1
	2.2
	2.3
GC3	3.1
	3.2
	3.3
GC4	4.1
	4.2
	4.3
GC5	5.1
	5.2
	5.3
GC6	6.1
	6.2
	6.3
GC7	7.1
	7.2
	7.3
GC8	8.1
	8.2
	8.3
GC9	9.1
	9.2
	9.3
GC10	10.1
	10.2
	10.3
GC11	11.1
	11.2
	11.3

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