HERSUS

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

STATEMENTS

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

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

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tools

statements

HERITAGE VALUE MATRIX - HVM

вредносна матрица наслеђа • Heritage Value Matrix • Πλαίσιο αξιών για την πολιτιστική κληρονομιά • Matriz del Valor del Patrimonio

GENERAL DEFINITION/ EXPLANATION

The Heritage Value Matrix (HVM) is recognized as a growing analytical tool in the study of architectural and urban heritage, which finds its methodological roots within the value-based approach of architectural programming. The EU Council Work Plan for Culture 2019-2022 denotes architecture as a cross-cutting field and "as a discipline that encompasses the right balance between cultural, social, economic, environmental and technical aspects for the common good". The right balance between these aspects also implies a focus on achieving sustainable development, which is why the identification of values that will be the triggers of this process is extremely important in research, education, practice and policy making. At the general level, HVM is an analytical cross-cutting system in which two axes intersect - problem and value. The first activates a problem-based approach in order to identify the scope that needs to be critically engaged through design process (problem-solving), while the second points to values that decode the contextual framework of heritage.

WHAT?

CONTENT

In order to understand the methodological nature of the HVM and its operative role in research by design process, the content of HVM curricula should have a two-fold perspective: (a) conceptualization of matrix, defining criteria and values, and structure for analysis, and (b) conducting an analysis on a reference case study for a heritage construct. The content should be research-oriented so that the student is encouraged by the analytical process of analysis - synthesis.

A. HVM conceptualization

- Defining criteria and values
- Structuring the matrix
- Graphical development of matrix - diagramming

B. HVM development

- Selecting relevant case study
- Analysis – combining desk and on-site research
- Development of matrix

Implementing both perspectives contribute to students developing skills for independent research design in addition to its implementation. A special segment of content in the context of the relationship between sustainability and heritage is positioned within the HVM conceptualization in defining criteria and values with special reference to pillars of sustainability.

HOW?

METHODS

Through recognizing all the features of the HVM approach, learning should include a combined teaching philosophy in order to achieve a high level of knowledge about HRP in the educational process:

(1) *problem-based* represent core, both teaching and learning philosophy, with the ultimate goal to identify specific problem concerning built heritage and solve it through design (problem solving);

(2) *information-oriented* philosophy is applied in order to form an information matrix consisting of cross-categories of values (function, form, economy and time), and information fields (goals, facts, concepts, needs and problem) relevant for design process – both values and fields are considered from the aspect of sustainability;

(3) *community-based* philosophy makes a logical factor in the HVM education process primarily due to the nature of user-oriented and participatory nature of HVM conceptualization and development; to define design inputs, and enhance research by design approach in line with the community needs, behaviour and habits.

In order to achieve a high level of applicability understanding the HVM approach in the design process, the necessity of case study engagement in educational process is recognized - research on specific spatial polygons, locations and contexts with multilayered and multiscale background. Contextual factors represent the basic input parameters for defining criteria and values within HVM conceptualization phase, which is why learning in a real environment and on concrete examples is of great importance for HVM.

WHY?

GOALS

Through mastering the proposed twofold content future professionals could develop:

(1) knowledge about relevant analytical tools for decoding cultural, economic and political aspects of cultural heritage;

(2) knowledge about relevant analytical tools for understanding contextual framework of cultural heritage;

(3) ability to analyse heritage through multiscale approach (from the level of building interior to landscape level) regarding their urban context and historical development, the functionality, the materials used, and the technical development;

(4) ability to make architectural and urban design choices on different scales, based on analysis and evaluation of current historical information;

(5) ability to systematize contextual analysis in a functional relation within heritage value matrix;

(6) ability to develop the value-framework for critical analysis and evaluation of heritage.

TEACHERS' COMPETENCIES

Following the general definition of HVM an analytical cross-cutting system in which two axes intersect - problem and value, a complex professional task is set for architectural educators primarily when it comes to the ability to use and cross varied teaching philosophies (as it explained in methods section). In this sense, the special competencies of teachers in HVM education relate to

(a) *teacher profile 1*: knowledge deliverer and knowledge designer - working within multiple disciplines and strong understanding the relationship of architecture to other disciplines in order to provide the widest possible scope for transferring of values, as well as design indicators,

(b) *teacher profile 2*: skills enhancer – the ability to articulate the relationship between students' analytical thinking and its representation through the intersection of visual methodologies (graphical techniques and tools - HVM conceptualization and HVM development),

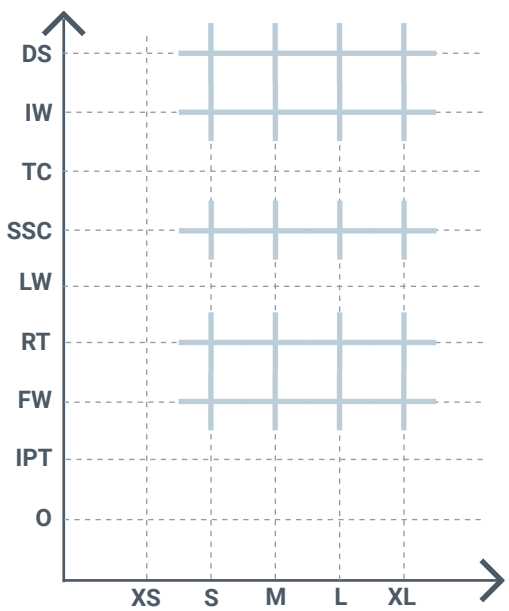
(c) *teacher profile 3*: social agent – the ability to create and establish learning environment outside the school in real conditions and to provide routes for community-based philosophy of learning.

COURSE TYPE

- ■ Design Studio (DS)
- ■ Intensive Workshop (IW)
- ☐ Theory Course (TC)
- ■ Seminar (short comprehensive) (SSC)
- ☐ Laboratory work (LW)
- ■ Research Thesis (RT)
- ■ Field work (FW)
- ☐ Internship Practical training (IPT)
- ☐ Other (O)

SCALE

- ☐ Construction Detailing and Interior Design Scale (XS)
- ■ Architecture: Buildings Scale (S)
- ■ Urban Design Scale (M)
- ■ Urban and Regional Planning Scale (L)
- ■ Landscape Scale (XL)



LEARNING OUTCOMES

1 Ability to create architectural designs that satisfy both aesthetic and technical requirements. The student could have the ability to:

- ☐ prepare and present building design projects of diverse scale, complexity, and type in a variety of contexts, using a range of media, and in response to a brief;
- ☐ understand the constructional and structural systems, the environmental strategies and the regulatory requirements that apply to the design and construction of a comprehensive design project;
- ■ develop a conceptual and critical approach to architectural design that integrates and satisfies the aesthetic aspects of a building and the technical requirements of its construction and the needs of the user.

2 Adequate knowledge of the histories and theories of architecture and the related arts, technologies and human sciences. The student will have knowledge of:

- ■ the cultural, social and intellectual histories, theories and technologies that influence the design of buildings;
- ■ the influence of history and theory on the spatial, social, and technological aspects of architecture
- ■ the application of appropriate theoretical concepts to studio design projects, demonstrating a reflective and critical approach.

3 Knowledge of the fine arts as an influence on the quality of architectural design. The student will have knowledge of:

- ☐ how the theories, practices and technologies of the arts influence architectural design;
- ☐ the creative application of the fine arts and their relevance and impact on architecture;
- ☐ the creative application of such work to studio design projects, in terms of their conceptualisation and representation.

4 Adequate knowledge of urban design, planning and the skills involved in the planning process. The student will have knowledge of:

- ■ theories of urban design and the planning of communities;
- ■ the influence of the design and development of cities, past and present on the contemporary built environment;
- ■ current planning policy and development control legislation, including social, environmental and economic aspects, and the relevance of these to design development.

5 **Understanding of the relationship between people and buildings, and between buildings and their environment, and the need to relate buildings and the spaces between them to human needs and scale. The student will have an understanding of:**

- ■ the needs and aspirations of building users;
- ■ the impact of buildings on the environment, and the precepts of sustainable design;
- ■ the way in which buildings fit into their local context.

6 **Understanding of the profession of architecture and the role of the architect in society, in particular in preparing briefs that take account of social factors. The student will have an understanding of:**

- □ the nature of professionalism and the duties and responsibilities of architects to clients, building users, constructors, co-professionals and the wider society;
- □ the role of the architect within the design team and construction industry, recognising the importance of current methods and trends in the construction of the built environment;
- ■ the potential impact of building projects on existing and proposed communities.

7 **Understanding of the methods of investigation and preparation of the brief for a design project. The student will have an understanding of:**

- ■ the need to critically review precedents relevant to the function, organisation and technological strategy of design proposals;
- ■ the need to appraise and prepare building briefs of diverse scales and types, to define client and user requirements and their appropriateness to site and context;
- ■ the contributions of architects and co-professionals to the formulation of the brief, and the methods of investigation used in its preparation.

8 **Understanding of the structural design, constructional and engineering problems associated with building design. The student will have an understanding of:**

- □ the investigation, critical appraisal and selection of alternative structural, constructional and material systems relevant to architectural design;
- □ strategies for building construction, and ability to integrate knowledge of structural principles and construction techniques;
- □ the physical properties and characteristics of building materials, components and systems, and the environmental impact of specification choices.

9 **Adequate knowledge of physical problems and technologies and the function of buildings so as to provide them with internal conditions of comfort and protection against the climate. The student will have knowledge of:**

- □ principles associated with designing optimum visual, thermal and acoustic environments;
- □ systems for environmental comfort realised within relevant precepts of sustainable design;
- □ strategies for building services, and ability to integrate these in a design project.

10 **The necessary design skills to meet building users' requirements within the constraints posed by cost factors and building regulations. The student will have the skills to:**

- □ critically examine the financial factors implied in varying building types, constructional systems, and specification
- □ understand the cost control mechanisms which operate during the development of a project;
- ■ prepare designs that will meet building users' requirements and comply with legislation, appropriate performance standards and health and safety requirements.

11 **Adequate knowledge of the industries, organisations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning. The student will have knowledge of:**

- □ the fundamental legal, professional and statutory responsibilities of the architect, and the organisations, regulations and procedures involved in the negotiation and approval of architectural designs, including land law, development control, building regulations and health and safety legislation;
- □ the professional inter-relationships of individuals and organisations involved in procuring and delivering architectural projects, and how these are defined through contractual and organisational structures;
- □ the basic management theories and business principles related to running both an architects' practice and architectural projects, recognising current and emerging trends in the construction industry.

TOOL APPLICATION EXAMPLE

Studio title:
- Design Studio: Heritage Reprogramming

Mentorship:
- A. Nikezić, J. Ristić Trajković
  A. Milovanović

Academic year / school:
- 2020-2021 / UB-FA

Values	Environmental	Human	Social	Systemic	Temporal	Economic	Aesthetic
Indicators	location climate urban context regional context	physical physiological psychological functional	cultural legal common	materials technologies processes	growth change constancy	building costs operationalization maintenance	form space style tradition

Figure 1. Programming value matrix according to Hershberger
Source: Hershberger 2002

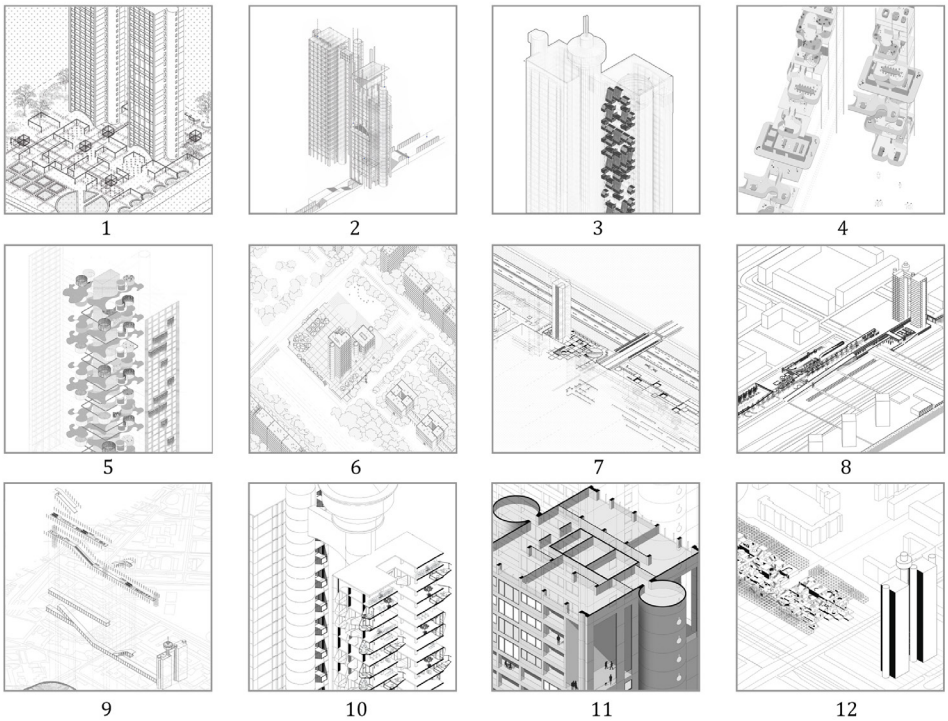


Figure 2. Conceptual models illustrations based on HVM - students: (1) Sofija Sinobad, (2) Una Obradović, (3) Danica Petrović, (4) Dunja Dedić, (5) Milica Mijajović, (6) Nenad Pavlović, (7) Andrej Jovanović, (8) Katarina Spasojević, (9) Jovana Prijović, (10) Teodora Stevanović, (11) Mihailo Milosavljević, (12) Milica Knežević.
Source: Ristić Traković, J. et al 2021

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