



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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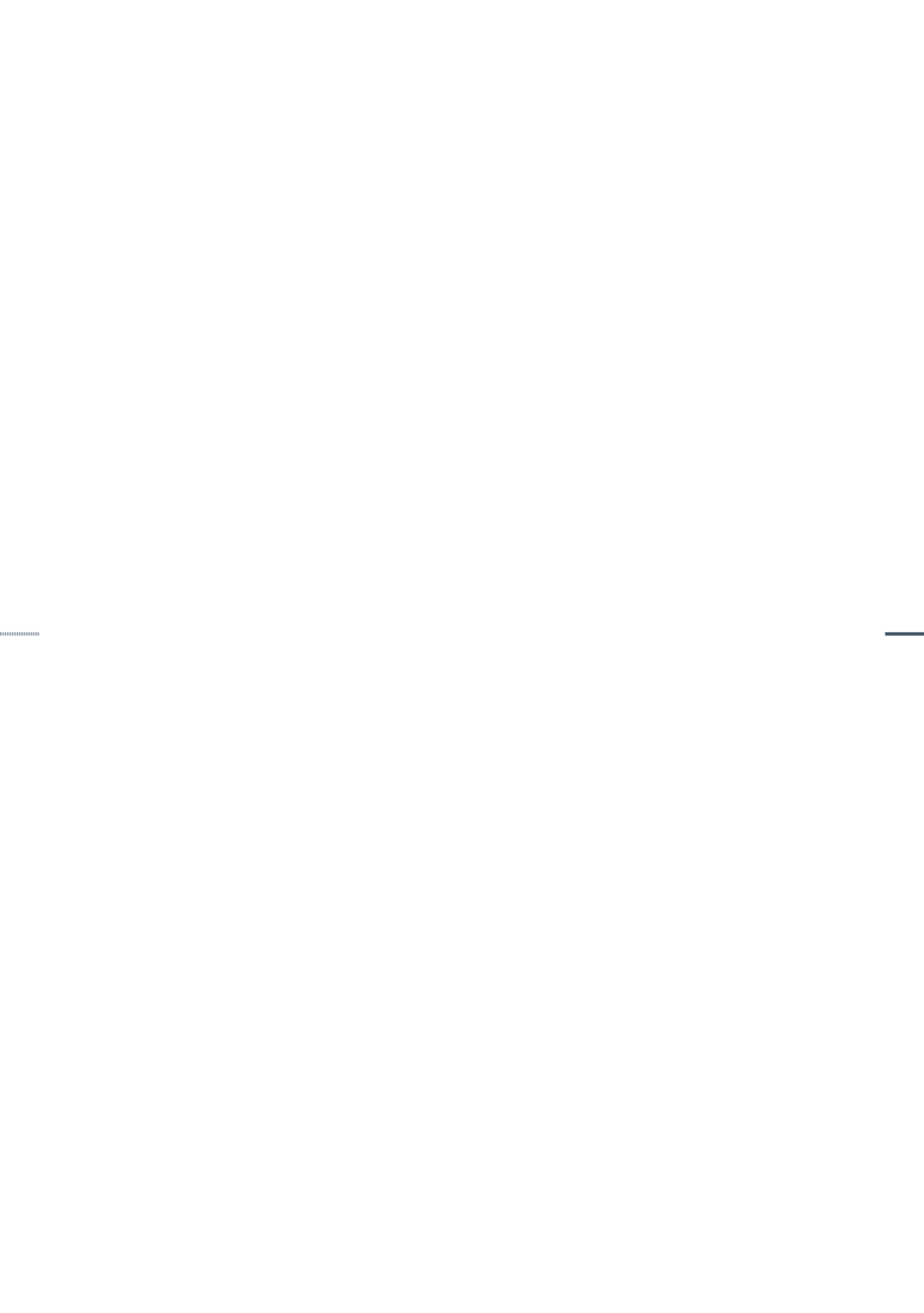
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# DESIGN APPROACHES

Heritage Reprogramming



Construction Centred Design



Environmentally Responsive Design



Energy Conscious Design



Climate Sensitive Design



Whole-Lifecycle Design



Carbon Neutral Design



Passive/Active Sustainable Design



Community Building and Representation



Renewable Energy Integration



Historical Urban Landscape- HUL



Design for All in Cultural Heritage



Thermal Comfort Design



Visual Comfort Design



Green Blue Infrastructure



Acoustic Comfort Design



Multiscale Design Approach



UB-FA

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Aleksandra Milovanović

01/18

**design approaches**  
statements



# HERITAGE REPROGRAMMING

репрограмирање наслеђа • Italiano • Ελληνικά • Español

## GENERAL DEFINITION/ EXPLANATION

Heritage reprogramming (HRP) is recognized as a growing, analytical and problem-based approach in the design process in which the subject of design/redesign is an entity of urban or architectural heritage.

The original position of the HRP approach in architectural discourse is under the auspices of architectural programming methodology and conceptual framework of the architectural program, raised in specific contextual circumstances of exponential urban development and urbanity growth, including changing patterns of everyday life, industrialization, mass construction, and standardization (Cherry, 1999). In its contextual framework, the programming methodology was created with the aspiration to (a) develop new spatial patterns and typologies in an effective, critical and argumentatively based way and (b) provide high performance and functionality of the space. Through rendering the programming methodology from its origin (functionally oriented and problem-based) (Pena & Fock, 1969) towards its rehabilitation from modernist doctrine (hybrid oriented and process-based approach) (Reeser Lawrence & Schafer, 2006), today, when cities experience limited capacity, one of the central design issues is focused on reprogramming existing typologies.

This design issue also reveals a new nature of programming - the RE nature - encouraging its new rehabilitation from a strictly developmental perspective to one that deals with creating a new functional order within the existing inherited spatial framework with the aim to provide a sustainable configuration of activities, spaces and relationships.

# WHAT?

## CONTENT

In order to understand both the methodological and conceptual nature of the program, the content of HRP curricula should have a threefold perspective: (a) critical analysis and understanding of the context in which the methodology is developed, (b) understanding of architectural programming approaches, and (c) understanding of techniques and programming tools.

### CONTEXT

- Technological arena: The origin of concepts and methods from information and computer systems;
- Socio-political arena: Creating the physiognomy of the urban landscape;
- Academic arena: Development of participation in the design process; and
- Practical arena: Development of design methods.

### APPROACHES

- Design-Based Architectural Programming;
- Knowledge-Based Architectural Programming;
- Agreement- Based Architectural Programming; and
- Value-Based Architectural Programming.

### TOOLS AND TECHNIQUES

- Value Matrix; and
- Diagramming.

Engaging all three thematic frameworks would provide a comprehensive understanding of the programming / reprogramming approach and point to entirely new meanings regarding sustainability and heritage. These meanings would be primarily decoded in relation to functional reprogramming and the intention to make the most of the capacities of the inherited spatial framework and thus reduce the consumption of new resources for the construction or radical transformation of individual buildings or urban entities.

# HOW?

## METHODS

Through recognizing all the features of the HRP 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) *design-based* philosophy makes a logical factor in the HRP education process primarily due to the nature of programming to conduct critical analysis, define design inputs, and enhance research by design approach.

In order to achieve a high level of applicability understanding the HRP approach in the design process, the necessity of case study engagement in educational process is recognized - research on specific spatial polygons, locations and contexts for which reprogramming is carried out. Contextual factors represent the basic input parameters for programming, which is why learning in a real environment and on concrete examples is of great importance for HRP.

## WHY?

### GOALS

Through mastering the proposed threefold content future professionals could develop:

- (1) operative knowledge about the main approaches of HRP and its contemporary state-of-the-art,
- (2) ability to place these approaches in their professional and experimental design context;
- (3) ability to apply different tools and techniques for analysis of built heritage, regarding its urban context and historical development, functionality, and technical development;
- (4) ability to recognise contemporary problems concerning urban and architectural heritage and apply problem-based approach in design process;
- (5) ability to create and present design solutions based on analysis and evaluation of context through value-matrix and diagramming; and
- (6) ability to justify critical point of view in discussions about the evaluation of heritage on different scales.

## TEACHERS' COMPETENCIES



Following the thesis of architectural programming pioneers that "programming like architecture is equally an art and a science", as well as that the role of an "architect programmer" is to identify and articulate indirect values of time and place and categorize these values, 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 HRP 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 program values,

(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).

## COURSE TYPE

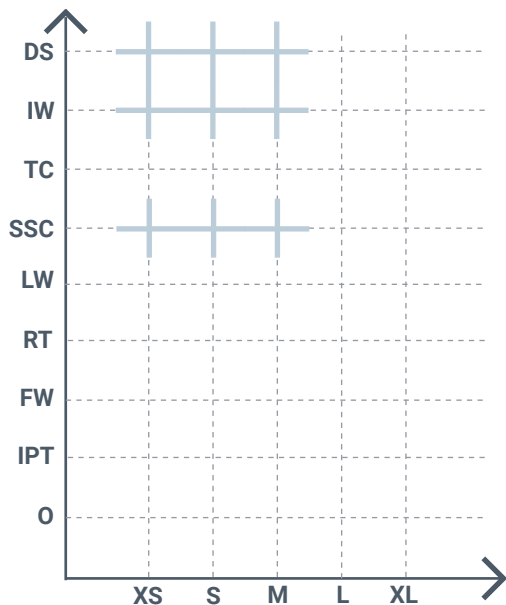


- Design Studio (DS)
- Intensive Workshop (IW)
- Theory Course (TC)
- Seminar (short comprehensive) (SSC)
- Laboratory work (LW)
- Research Thesis (RT)
- Field work (FW)
- Internship Practical training (IPT)
- Other (O)

## 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.

# BUILT ARCHITECTURAL / URBAN DESIGN PROJECT EXAMPLE



Project title and location:  
✕ Impact Hub Belgrade, Serbia

Authors:  
✕ URED Architecture Studio

Year (period) of the project  
✕ 2014

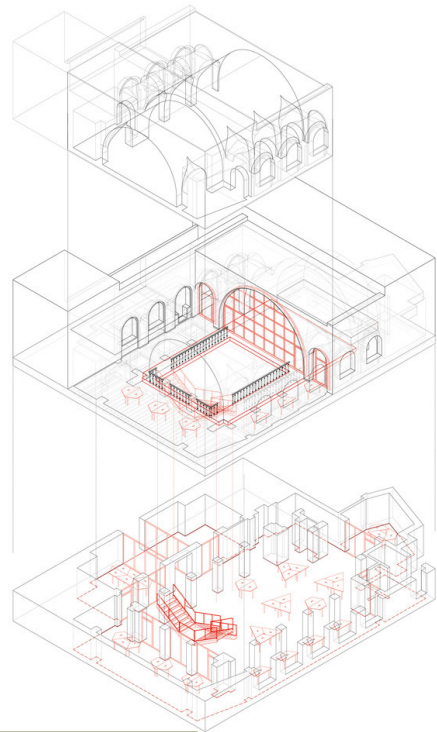


Figure 1. Axonometric  
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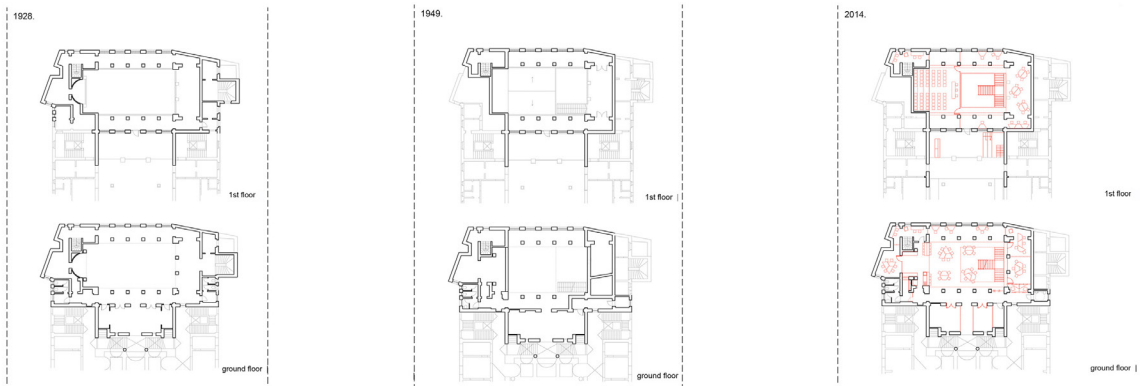


Figure 2. Chronological preview of space function - plans  
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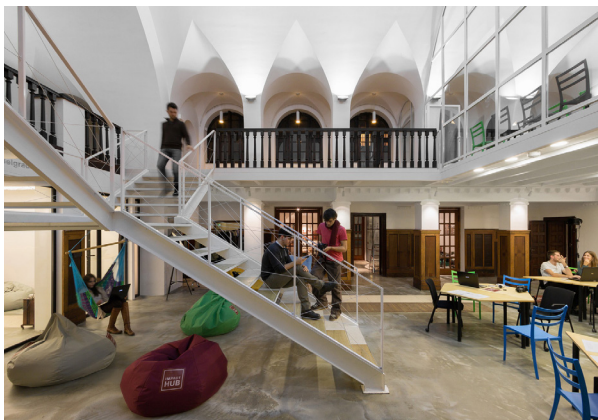


Figure 3. Interior photos  
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