

SYLLABUS:

MATERIALS OF LANDSCAPE ARCHITECTURE

Course name: Materials of landscape architecture
Number of credits: 4.8 ECTS/3 MCTS
Period: Fall semester

Host institution	School of Agroecology, Mongolian University of Life Sciences
Lecturer	Belguun Avgaannamkhaidorj
Level	BSc course
Course type	Core course
Course duration	16 weeks
New/Revised	New
E-course link	https://online.num.edu.mn/dashboard

Summary

Landscape architecture design and planning consists of four main types of materials: wood, stone, concrete and steel. The lectures cover the introduction of construction and decoration materials such as wood, stone, metal and concrete elements. The second section deals with the planning materials to be used in landscape architecture, the nature of the material, the spatial design, the type of decorative art, and the features of the Mongolian traditional landscape material.

Target student audiences

Bachelor students majoring in Landscape Architecture

Prerequisites

- Required courses (or equivalents): Design – I
Landscape architecture project LMD371

Aims and objectives

The purpose of this course is to provide students with knowledge and skills of the basic concepts of landscape architectural design solutions, planning design and elementary materials through lectures and laboratory practices for their use in spatial research. By studying this course, the student will be able to use the results of the research to design, select the optimal materials for the performance of the landscape architecture and enhance the quality of the work.

The authentic tasks

After lectures for 2 hours, there will be laboratory practices for 2 hours.

General learning outcomes:

By the end of the course, successful students will:

Knowledge

- The course provides the students with the knowledge of:
- ~ Knowledge of materials for small-scale architectural elements of urban landscapes
 - ~ Selection and discuss the types of materials in the planning works
 - ~ Knowledge of timber structures
 - ~ Knowledge of metal structures
 - ~ Knowledge of reinforced concrete structures
 - ~ Develop the ability to critical thinking, analyze and create materials used in urban landscape planning

	~ Knowledge to make hypotheses through experimental research on urban landscape planning and design solutions
Application	~ To select and use the construction and decoration materials for each purpose of the landscape architecture planning and design
Analysis	~ To analyze planning and design materials and evaluate the quality of work performance
Synthesis	~ To analyze the quality of landscaping work materials, explain the types of materials orally, and make landscape architectural maps
Competences	<p>The course will help students acquire competences, such as:</p> <ul style="list-style-type: none"> ~ Conduct research on material quality and aging in landscaping and design solutions, and introduce new types of materials in planning ~ Improve design quality by selecting material models for landscape architectural design ~ Select and plan materials that meet the standard requirements for the performance ~ Develop new technological solutions according to the model, ~ Project management, performance monitoring, oral presentation of material types, landscape architectural mapping

Overview of sessions and teaching methods

The course will make most of interactive and self-reflective methods of teaching and learning and, where possible, avoid standing lectures and presentations.

Learning methods	<ul style="list-style-type: none"> ~ Video presentations ~ Interviews, surveys, group work, written articles/essay ~ Project Based Learning ~ Literature review
Course outline	<p>Week 1: Features of the historical development of architectural materials in Mongolian and abroad</p> <p>Week 2: Classification of basic materials and items</p> <p>Week 3: Physical and mechanical properties of materials</p> <p>Week 4: Modern design solutions and material classification</p> <p>Week 5: The concept and application of wood products</p> <p>Week 6: Technology methods of wood materials</p> <p>Week 7: Stone materials, and their properties and types</p> <p>Week 8: Landscaping materials for construction</p> <p>Week 9: The concept and application of metal structure</p> <p>Week 10: Material solution of fence design elements</p> <p>Week 11: Decorative materials and articles: Minerals, raw materials and their classification</p> <p>Week 12: Classification and properties of concrete. Concrete technology</p> <p>Week 13: Design of garden items and material characteristics of elements Pigment volume concentration</p> <p>Week 14: Other types of materials used in design solutions</p> <p>Week 15: Features of refractory materials</p> <p>Week 16: Waterproof material</p>

Course workload

The table below summarizes course workload distribution:

Activities	Learning outcomes	Assessment	Workload (hours)
In-class activities			
Lectures	Understanding theories, concepts, methodology and tools	Class participation	32
Moderated in-class discussions	Understanding of the construction and decoration materials for landscape architecture planning and design	Class participation and preparedness for discussions	8
In-class assignments	Understanding of the concept and application of the various construction and decoration materials and items	Class participation and preparedness for assignments	8
Reading and discussion of assigned papers for seminars and preparation for lectures	Familiarity with and ability to creatively discuss key concepts, standards and methodologies as presented in the textbook and articles.	Class participation, creative and active contribution to discussion	8
Group presentation	Interpret the design elements, analyze on quality of materials, and use the landscaping materials for architectural planning	Quality of group assignments and individual presentations	8
Independent work			
Group work Contribution to the group case-study projects	Analyze and explain the landscaping work performed. Knowledge of material selection, application, and technological methods for planning	Quality of group assignments	30
Course group assignment	Understanding of each topic, students will strengthen their knowledge by answering key questions.	Quality of exams	25
Individual work	Students will be able to use a variety of design materials in the laboratory works with their own skills and knowledge	Quality of individual laboratory work	25
Total			144

Grading

The students' performance will be based on the following:

Assessment	Attendance of courses (20 points)				
	Assessment -I (20%):				
	Understanding of landscape design and planning materials (1-8 topics)				
	Assessment -II (30%):				
	Understanding of landscape design and landscaping materials (9-16 topics)				
Assessment	Final examination (30%)				
	Evaluate the skills in the use of materials in landscape design and planning, and assess the design elements of the drawings by AvtoCAD in laboratory courses.				
	Total 100 points				

Evaluation EU system	A (8,5 – 10) B (7,0 – 8,4) C (5,5 - 6,9) D (4,0 – 5,4)	Evaluation MN system	95-100	A	4.0
			90-94	A-	3.6
			85-89	B	3.1
			80-84	B-	2.7
			75-79	C	2.3
			70-74	C-	1.9
			65-69	D	1.4

Course schedule

Week	In-class hours	Topic	Type
1	2	~ Features of the historical development of architectural materials in Mongolian and abroad	Lecture
	2	~ Spatial elements of landscape design	Laboratory
2	2	~ Classification of basic materials and items	Lecture
	2	~ Material selection	Laboratory
3	2	~ Physical and mechanical properties of materials	Lecture
	2	~ Classification of basic materials and items	Laboratory
4	2	~ Modern design solutions and material classification	Lecture
	2	~ Design and structure drawing of children's playground	Laboratory
5	2	~ The concept and application of wood products	Lecture
	2	~ Drawing of wooden structures	Laboratory
6	2	~ Technology methods of wood materials	Lecture
	2	~ Decorative materials and articles: Collection of minerals, raw materials, their explanations and materials	Laboratory
7	2	~ Stone materials, and their properties and types	Lecture
	2	~ Drawing of reinforced concrete structures	Laboratory
8	2	~ Landscaping materials for construction	Lecture
	2	~ Metal structure drawing	Laboratory
9	2	~ The concept and application of metal structure	Lecture
	2	~ Reinforcing steel structure	Laboratory
10	2	~ Material solution of fence design elements	Lecture
	2	~ Description of physical and mechanical properties of materials, a sample of materials	Laboratory
11	2	~ Decorative materials and articles: Minerals, raw materials and their classification	Lecture
	2	~ Understanding the properties of concrete structures, concrete marks and drawings	Laboratory
12	2	~ Classification and properties of concrete. Concrete technology	Lecture
	2	~ Elements of water structures	Laboratory
13	2	~ Design of garden items and material characteristics of elements Pigment volume concentration	Lecture
	2	~ Structural drawing of plastic materials	Laboratory
14	2	~ Other types of materials used in design solutions	Lecture
	2	~ Structural drawing of plastic materials	Laboratory
15	2	~ Features of refractory materials	Lecture
	2	~ Technology description of heat and moisture effects and sample of materials	Laboratory
16	2	~ Waterproof material	Lecture
	2	~ Types of sidewalks and material structure	Laboratory
Lecture 32			
Seminar 32			



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Course assignments/tests

Final exam will evaluate the student's own skills and they will be able to use a variety of design materials in the laboratory works to develop landscape design and planning.

- ~ Assignment 1: landscape design and planning materials (1-8 topics)
- ~ Assignment 2: landscape design and planning materials (9-16 topics)

Literature

Compulsory:

1. A. Belguun (2022) "Decorative material". Ulaanbaatar
2. D. Dashjamts (2017) "Professional introduction to construction and architecture" Ulaanbaatar

Recommended:

1. D. Battogtokh, Ch. Oyunjargal, B. Badamtsetseg (2014) "Structural drawing of the building"
4. B. Battsagaan (2019) "Construction materials". Ulaanbaatar
5. D. Sunjidmaa, S. Chuluunbaatar (2008) "Construction materials"

Training materials:

1. Landscape architectural design map
2. Design of landscape architectural design solutions
3. Documents of the Urban standards, Environmental safety inspection agency
4. AutoCAD