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URBAN GREEN FACILITIES

Introduction to the course
EREC324

Teacher: Bat-Erdene Ganchimeg
National University of Mongolia

Teacher: Demberel Enkhtuul
National University of Mongolia

CONTENT

1. General information and verification
2. Interconnection of the courses
3. Course objectives and significance
4. Content of the course
5. Self-study content
6. Teaching methodology
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8. Literature
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SYLLABUS

Course title:	**URBAN GREEN FACILITIES**
Course Index:	EREC324
Course classification:	Bachelor
Course type:	Specialization / Compulsory
Course credit hour:	6ECTS/ 3MCTS
Study semester:	all semesters
Total page number:	5
Online lesson:	Full e-learning

http://online.num.edu.mn/courses/course-v1:NationalUniversityofMongolia+ENVI+2020/about

Developed by:

Faculty	Department	Name, title, degree of the lecturer	Signature
School of Natural Sciences and Technology	Department of Biology	Ganchimeg. B /Master/ Enkhtuul. D /Master/	

Approved by:

Curriculum Subcommittee of Faculty/Department	Date of meeting and approval	Name, title, degree of the Head of Curriculum Subcommittee	Signature
Curriculum Subcommittee, Department of Biology		Erdenechimeg. N /Master/ Head, Curriculum Subcommittee	
Curriculum Subcommittee, School of Natural Sciences and Technology		Tegshjargal. N /Ph.D./ Head, Curriculum Subcommittee	

Approved:

The curriculum was discussed and approved at the meeting of the Sub-Committee of the School of Natural Sciences and Technology, Khovd State University on ....., 2022.

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Information about the lecturers:

Name of the Department:	Department of Biology
Name and title of the lecturer:	Ganchimeg, B. Master
Phone:	99881801
Email address:	b.ganchimeg@khu.edu.mn
Room:	1st building, 315
Consultation date and time:	Everyday from 9AM to 6PM
Website:	http://www.khu.edu.mn/

Name of the Department:	Department of Biology
Name and title of the lecturer:	Enkhtuul, D. Master
Phone:	80802640
Email address:	enkhtuul@khu.edu.mn
Room:	1st building, 315
Consultation date and time:	Everyday 9AM to 6PM
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INTERCONNECTION OF THE COURSES

Name and index of the previous courses:

1. Plant ecology and taxonomy — BECO305
2. Meteorology and hydrology — METE312

Name and index of appropriate courses to study simultaneously:

3. Biodiversity conservation technology — BIDT309

COURSE OBJECTIVES AND SIGNIFICANCE

The objective of the course is to teach about urban landscaping models, their diversity, methods, knowledge and skills for growing trees and shrubs suitable for urban landscaping.

1. Learn how to develop a management plan of green facilities in accordance with the standards
2. Acquire theoretical knowledge and skills on green facilities and gardening
3. To be trained on design of green facilities, re-formation suitable for landscape features, plantation of trees and shrubs suitable for urban ornament, as well as knowledge and skills on protecting them from pests and pest prevention methods

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CONTENT OF THE COURSE

The course 'Urban green facilities' will offer fundamental theoretical understandings and concepts about classification of urban green facilities, choosing of trees and shrubs for urban green facilities, methodology of planting trees and shrubs, maintenance methods of trees and shrubs, fighting the pests, trimming of trees and shrubs, planting flowers and landscaping, as well as rehabilitation of urban green facilities.

KNOWLEDGE AND SKILLS TO BE OBTAINED

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Skills:

By taking this course a specialist with in-depth knowledge of science-based theory and practice of gardening and green facilities, and the ability to work independently in the field of creating green facilities and gardening that meets the requirements of urban development and planning will be prepared. In addition, it aims to provide the skills on general requirements for urban green facilities and landscaping, plantation and use of trees and shrubs appropriate for urban ornament, their protection from pests, their maintenance and pest control methods.

Attitude:

- Ability to express own viewpoints and conclusions, and ability to express respect for the views and opinions of others and get the values in them.
- Be a member of a team and experience the development of the ability to represent others
- It seeks to develop attitudes toward differences of opinion, acceptance and disapproval.

Knowledge:

Graduates majoring in Environmental Protection Technology will obtain both theoretical and practical knowledge with scientific background in gardening and green facilities, as well as how to provide and implement them with planning and methodology

Lectures:

Week	Lesson topic/title	Content	Hours
I	Methodology of urban gardening	Establishing of green facilities to the extent specified in the norms and requirements of urban development and planning is an important factor in creating the hygienic living and working conditions of the residents of the city.	2
II	Classification of urban green facilities	Green facilities are built according to specific plans in different sizes and categories depending on the number and size of residents of that city. The work of green facilities or urban landscaping is divided into three types: *for public use, for limited use, and for special purpose.*	2
III	Biological features of woody plants	As woody plants are living organisms, they feed, breathe, feel, grow, and die. The more branches, the more leaves, the tree is more patulous and the more green mass, and therefore the better the metabolism becomes.	2
IV	Choosing trees and shrubs for urban green facilities	When choosing trees and shrubs to be planted in green facilities from forests and/or arboretums following characteristics should be considered: their age, height, crown thickness, leaf, flower, bark color, leaf	2
V	Meth ornan		
VI	Meth and s		
VII	Trans shrub		
VIII	Soil c for ur facili		
IX	Types of fertilizers and methods of their application	Fertilization of green facilities is one of the most important agro-technical measures aimed at increasing the growth of trees and shrubs and protection of them from diseases and pests.	2
X	Irrigation of green facilities	Particular attention should be paid to irrigation in the first year after planting trees and shrubs. After planting trees and shrubs and compacting the soil, irrigate 3-4 times a week with 40-50 liters per large tree and 20-30 liters per bush.	2
XI	Pests of trees and shrubs in urban green facilities and ways to prevent them	Disease and pest infestations in trees and shrubs can lead to loss of normal condition of plant physiology and morphology, impaired growth, even to death. When the study of the food relationship between trees and pesticides was conducted on the organs above the ground, 26.4 percent of insects feed on tree leaves, 57.8 percent feed on bark and wood tissues, while 15.8 percent feed on seed cones.	2
XII	The attractiveness of greenery trees and shrubs	In addition to the shape and height of the crown of the tree, the location of the leaves on the branches also plays an important role in the beautiful appearance of the shrubs. During the selection process of trees and shrubs for planting in the city, flowering plants should be chosen considering the importance of ornament.	2
XIII	Flowers and their maintenance	Flowers play an important role in the urban landscaping. The main goal of urban development and landscaping should be to change the appearance of the city by decorating the park and micro districts with flowers using their the color, aroma and beauty, to create an architectural structure and design, and thus to establish a pleasant living and working environment for the citizens.	2
XIV	Landscaping and lawn care	Protecting urban soils from erosion and creating long-lasting greenery for hygienic and scenery purposes is part of urban landscaping.	2
XV	Landscaping of newly established area	Outdoor landscaping includes soil fertility work, building of indoor roads, sidewalks, exits, as well as fencing, establishing children's playgrounds, sports fields, recreational facilities, and other gardening activities.	2
XVI	Rehabilitation of urban green facilities	The city's underground facilities are constantly being renovated, expanded, and fixed, and these engineering facilities are often located under the city streets especially of the squares, sidewalks, lawns, and trees. It is easy to repair and replace in one hand, but on the other hand, earthworks are expensive to rehabilitate.	2
Total			**32**

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Seminars:

Week	Lesson topic/title	Content	Hours
I	Life of woody lants	Woody plants create their own bodies from the environment, but they also affect the environment, enriching the soil, purifying the air, creating scenery in the city, and creating favorable conditions for people to work and live.	2
II	Features of ornamental trees and shrubs	In our country, except for 6 types of coniferous trees, such as pine, larch, ebony, spruce, cedar, fir and juniper, the others are deciduous trees and shrubs. The average height of a shrub depends on the plant's genus, breed, and lineage. In other words, no matter how favorable the growing conditions are, they do not exceed the average growth rate.	2
III	Arboretums for urban and rural gardening	Tree and shrub seedlings required for urban and rural gardening are grown in specialized arboretums. Arboretums are classified into urban, horticultural, afforestation, and orchard according to their purposes.	2
IV	Grass used for landscaping	Many types of grass are used for urban landscaping which include turf, quack grass, bromegrass, wheat grass, Siberian stipa, festuca venusta	2
V	Landscaping and flower gardening of households	Landscaping and flower gardening should begin with a fence and/or household that is legally owned and located. In case of 50 percent of the 0.07 hectare area is a building, the remaining 50 percent should become a sidewalk, a toilet, a sewer, a coalhouse, or a garden.	2
VI	Design Project of Urban Gardening	As a component of urban development and an important element of urban architecture and planning, urban green facilities should be developed considering the general plan of the city and landscaping scheme.	2
VII	Maintenance for diseased	Cracks in the tree brunches, rough surfaces and damaged barks can create the favorable condition for pests to reproduce. Holes,	2
VIII			
IX	Growing seedlings of trees and shrubs in greenhouses and open areas	Seedlings and regrowth of fruit trees and shrubs are important to increase the size of the garden. With the purpose to shorten the growing time of planting materials and increase the number of seedlings per unit area, seedlings of trees and shrubs are grown in the greenhouse.	2
X	Technology for transplanting large trees	International experiences and practices show that growing large trees through transplanting is the most effective method.	2
XI	Flowering urban areas in gobi desert and steppe	Planting trees and shrubs, lawns and flower beds in the urban areas of Gobi and steppe will create a hygienic environment and pleasant views for the residents.	2
XII	Trees and shrubs that can be grown in Khovd aimag	According to the 2011 census, the forest area has increased from 13,770 hectares to 792,751 hectares, and in 2020 to 812,921 hectares. The grounds for this increase is an increased saxaul forest area.	2
XIII	Fighting ground vegetation	One of the main things to pay attention to in the framework of urban gardening and landscaping is the control of foot vegetation.	2
XIV	The growth rate of trees and shrubs	The faster a tree or shrub grows, the faster it will take effect and supply the needs of people. The growth and development of shrubs is determined by the height and thickness of the stem, the width of the crown or the increase in diameter. Tree growth is measured by the annual growth of stems and branches.	2
XV	The role of landscape architecture	Modern urban planning norms reflect the urban gardening its structure and role. Gardening areas include apartment blocks, squares, apartment complex gardens, and parks.	2
XVI	Origin of green facilities in Ulaanbaatar city	Urban gardening in the People's Republic of Mongolia began in the 1930s. Currently, even though there are 620 hectares of gardens and 1.3 million trees and shrubs are grown in Ulaanbaatar, but they are not growing steadily due to lack of irrigation and rehabilitation, human and animal overgrazing, the destruction by new buildings.	2
Total hours			**32**

TEACHING METHODOLOGY

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Learning activities are a combination of in-class and online trainings that support students' learning, allow opportunities for development, encourage their participation, and provide active, project-based learning through activities with the use of ICT.

To organize a lecture course:

It will be organized using self-directed learning and combined learning methods to provide new knowledge, to carry out discussions, raise issues, and get engaged in discussions.

To organize a seminar course:

Seminars will be organized in teams, which is different from traditional seminars in that they teach students the skills of teamwork and individual communication skills.

To organize term paper and assignments:

Students will do term paper assignments in this course on urban green facilities. Students will learn new skills to search information from sources, to conduct and organize independent research by choosing one of the following topics.

COURSE ASSIGNMENT

1	Urban green facilities and our environment	Must meet the requirements of the essay writing	Essay	3rd week of the semester
2	Green facilities of our city	- Clear idea - Short video of 3 – 5 minutes - Illustrate in a simple and clear way relevant to the given topic - Must meet audio and video quality requirements	Make a short video	4th week of the semester
3	Landscape and protection of green facilities	1. In terms of term paper structure: *Introduction, content, conclusion, bibliography, appendix* 2.Without spelling mistakes. Line spacing 1.5, page size 2cm from the bottom, 1.5cm from the right, and 3cm from the left, and the page number should not be less than 6 pages.	Write a term paper	5th week of the semester

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COURSE ASSIGNMENT

The main purpose of the course assessment is to objectively assess the knowledge gained during the course of urban green facilities, the ability to apply it in practice, and the changes in the orientation of intellectual values.

The semester exams will be assessed on the level of knowledge and skills required to be gained within the curriculum.

Standard assessment to assess each student's self-esteem, knowledge, skills, and abilities on this course will be provided.

Marks, points, and grades are used to assess students' knowledge, skills, and abilities. Marks, grades, and points are transferred as follows.

Mark	Grade
A	95-100
A-	90-94
B	85-89
B-	80-84
C	75-79
C-	70-74
D	65-69
D-	60-64
F	0-59

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COURSE ASSIGNMENT

Grade	Evaluation type	Evaluation procedure	Evaluation score
Grade O_1	Lesson attendance and active involvement	Attendance, active involvement in lessons, learning styles, skill changes and growth are assessed.	20-30
Grade O_2	Formative assessment, term paper, and laboratory work performance	It is evaluated by the sum of the scores on midterm test 1 and 2. It will be evaluated by the sum of the midterm test score and the score of term paper which is evaluated on the submission on time and quality.	50-40
Grade O_3	Summative assessment of the course	Summative assessment test scores	30 points
Grade O	**Total score**		**100 points**

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Literature

Basic textbooks:

1. Batchuluun. Ts, Tsengel. B, Gerelbaatar. S. Gardening and Green Facilities. Ulaanbaatar. 2016
2. Chimid. B. Basics of Urban Gardening. Ulaanbaatar. 2008.
3. Chimed. B. Basics of Urban Green Facilities and Landscape Dendrology. Ulaanbaatar. 2014

Additional books:

1. Gombosuren. Tsengel. Botany of Woody Plants. Ulaanbaatar. 2005
2. Davaajamts. Ts, Sanchir. Ch. Basics of Planting and Maintaining Trees and Lawns. Ulaanbaatar. 1982

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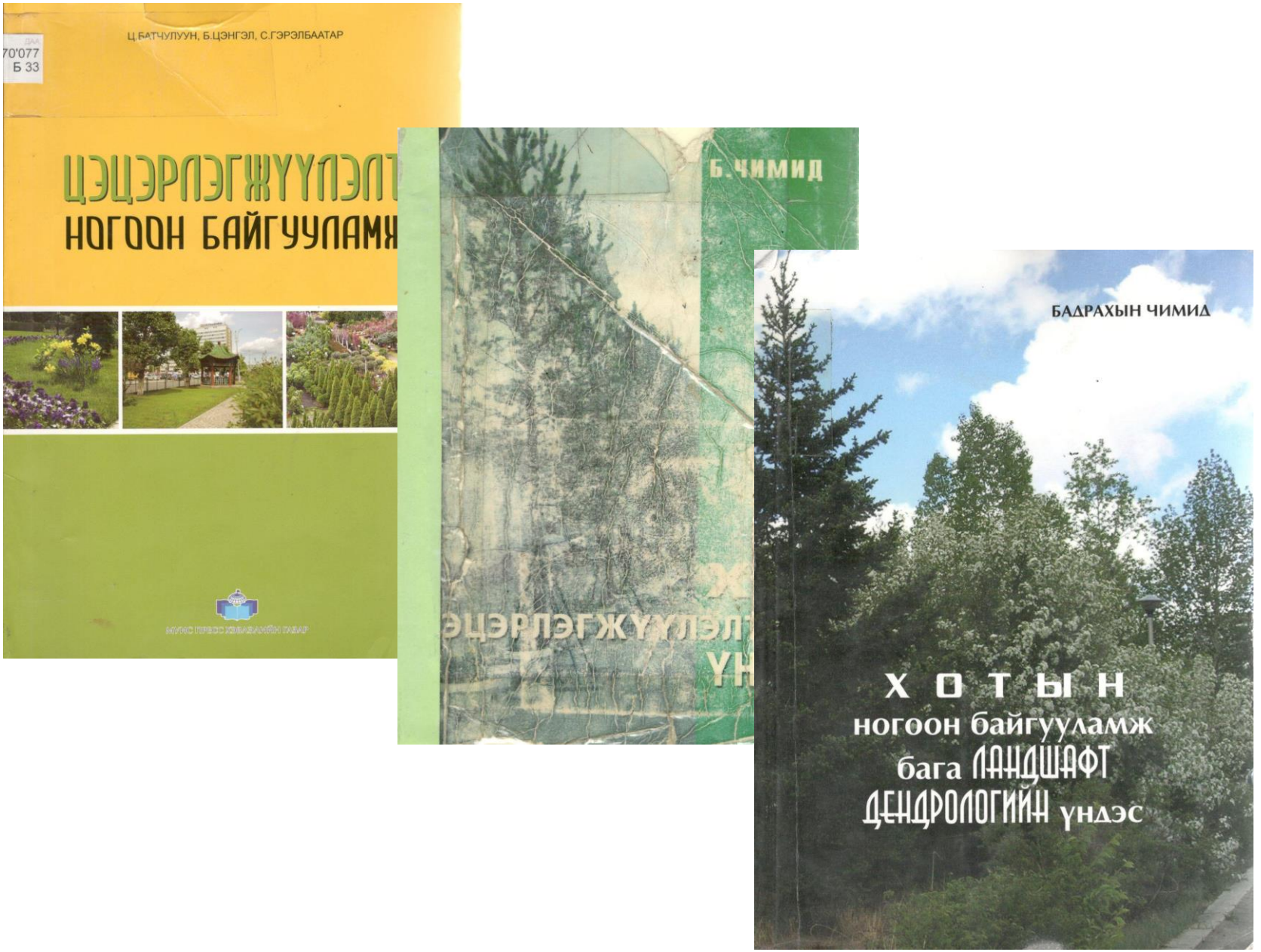

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