

ARCH 426 Green Building Certification Systems

2023-2024 Spring

Level: Undergraduate

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Course Description

This course delves into the principles of sustainability and green construction practices as mandated by Turkish and European Union legislation. It offers a comprehensive analysis of green building techniques and their associated rating systems. Through a detailed examination of cost-benefit analyses, life cycle costs, and embodied energy assessments, participants will gain insights into key sustainability considerations. The curriculum also encompasses a thorough exploration of green building design fundamentals, techniques, documentation processes, and certification protocols, emphasizing current global certification practices.

Course Objectives

Central to this course is the exploration of green building concepts and the various certification systems that underscore their significance. Participants will learn to employ cost-benefit analyses, assess life cycle costs, evaluate embodied energy, and understand broader sustainability issues. Furthermore, the course aims to dissect and evaluate global certification systems, focusing on their criteria, applicable building typologies, techniques, documentation requirements, and certification processes.

Teaching Policy

The course features three hours of lecture time weekly, blending online presentations that impart theoretical knowledge with interactive discussions and a case study analysis. This pedagogical approach ensures a comprehensive understanding of the subject matter, fostering critical thinking and application skills in green building design and certification.

Course Schedule and Outline:

Course Outline	
Week Date	Topic(s)
1 22/02	Introduction, definition and content of the term sustainability, green building
2 29/02	Building Process / Concepts of green design, green buildings and green building certification systems
3 07/03	Concept of Nearly/Net Zero Energy/Water/Carbon Buildings Energy management strategies, material selection procedures and Indoor environmental quality in green building certification systems
4 14/03	Concept of Nearly/Net Zero Energy/Water/Carbon Buildings Energy management strategies, material selection procedures and Indoor environmental quality in green building certification systems Green building/construction practices specified in Turkish and EU laws

5 21/03	National Certification Systems ÇEDBİK-BEST / Yes-TR, Green Building Certification Systems
6 28/03	International Certification Systems LEED Green Building Certification System
7 04/04	International Certification Systems BREEAM Green Building Certification System
8 11/04	OFF DAY (Official Holiday Day)
9 18/04	International Certification Systems DGNB Green Building Certification System CASBEE Green Building Certification System
10 25/04	Review/Comparative Analysis of Certification Systems
11 02/05	Green Building Case study / Discussion / Documentation /
12 09/05	Green Building Case study / Discussion / Documentation /
13 16/05	Green Building Case study / Discussion / Documentation /
14 23/05	Green Building Case study / Discussion / Documentation /
15 30/05	Green Building Case study / Discussion / Documentation /

Grading Policy:

Midterm Exam	1	50%
Final Exam (Term Project-Case Study Submission)	1	50%

References:

Bauer, M., Möhle, P., Schwarz, M., Green Building: Guidebook for Sustainable Architecture, Springer 2010

Kubba, S., Handbook of Green Building Design and Construction: LEED, BREEAM, and Green Globes, Elsevier, 2012

Ebert, T., Essig, N., Hauser, G., Green Building Certification Systems (Detail Green Books), Detail, 2011

Reeder, L., Guide to Green Building Rating Systems, Wiley, 2010

Websites

<https://www.usgbc.org/leed>

<https://bregroup.com/products/breem/>

<https://yestr.csb.gov.tr/Hesap/YeniGiris>

<https://www.cedbik.org/best>

<https://www.dgnb.de/en>

<https://www.ibec.or.jp/CASBEE/english/>