Green Building Design and Sustainable Construction

A six-week short course for working professionals and graduate learners

Dr. Varuni Jayasooriya | School of Environment and Sustainability | varuni.jayasooriya@usask.ca

LIVE SESSIONS **Wednesdays, January 6–February 10, 2027 | 6:00–8:00 p.m.**

Building projects involve choices about energy, materials, water, site conditions and the people who use the space. This course gives participants a practical way to assess those choices across a building's life cycle, from planning and construction through operation and eventual reuse.

Through case studies and applied work, participants will examine green building certification, life cycle assessment, passive and active energy strategies, indoor environmental quality, climate resilience and emerging approaches to sustainable construction. Participants may develop their course assessments around either an existing building retrofit or a proposed new building.

By the end of the course, participants will be able to evaluate a building or design proposal and make evidence-based recommendations suited to its site, climate and users.

Learning competencies

During the course, participants will develop the following practical skills:

- Assess green building strategies and apply relevant certification criteria, including LEED, to a building case.
- Compare site selection, materials and construction options using life cycle and resource efficiency considerations.
- Identify opportunities to improve energy performance through passive design and efficient building systems.
- Evaluate water use, waste management, indoor environmental quality and occupant well-being.
- Examine climate risks and recommend design or retrofit measures that improve building resilience.
- Prepare and communicate a practical sustainable building proposal with clear priorities and tradeoffs.

Course structure

The course runs for six weeks, from January 6 to February 10, 2027, with live sessions every Wednesday from 6:00 to 8:00 p.m. Each week combines a two-hour live session with approximately three hours of independent work: about one hour of recorded material and two hours of practical activities. Live sessions focus on case discussion, application and feedback. Participants complete two applied assessments, one midway through the course and one at the end, using either the retrofit or new building pathway.

The course is structured as follows:

Week	Date and time	Synchronous session | 2 hours	Asynchronous materials and applied work | 3 hours
1	Wed, Jan 6, 2027 6:00–8:00 p.m.	Foundations of green building design and construction; site selection and sustainability goals	Review recorded materials and examine a building case, its site, climate and environmental priorities.
2	Wed, Jan 13, 2027 6:00–8:00 p.m.	Green building certification and sustainable construction; LEED and other frameworks	Review certification criteria and assess the case against selected categories; compare construction and material choices.
3	Wed, Jan 20, 2027 6:00–8:00 p.m.	Life cycle assessment, sustainable materials and circular construction	Complete a preliminary life cycle and resource efficiency review; submit the mid-course building assessment.
4	Wed, Jan 27, 2027 6:00–8:00 p.m.	Passive design, energy systems, water and waste management	Identify energy, water and waste interventions for the chosen retrofit or new building design.
5	Wed, Feb 3, 2027 6:00–8:00 p.m.	Indoor environmental quality, health and climate resilience	Assess comfort, air quality, occupant well-being and climate risks; develop the final proposal and discuss tradeoffs.
6	Wed, Feb 10, 2027 6:00–8:00 p.m.	Emerging approaches and the future of green buildings; project presentations	Refine and submit the final sustainable building proposal, including recommendations, priorities and supporting rationale.

Applied Assessments

Mid-course building assessment: Evaluate the selected existing building or proposed design using green building certification criteria and life-cycle considerations.

Final sustainable building proposal: Develop and justify prioritized design or retrofit recommendations addressing materials, energy, water, waste, indoor environmental quality and climate resilience, considering practical tradeoffs.