

DISCIPLINE SPECIFIC ELECTIVE (DSE-EVS-13): GREEN URBANIZATION

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
DSE-EVS-13: GREEN URBANIZATION	4	2	0	2	Class XII pass	NA

Learning objectives

The Learning Objectives of this course are as follows:

- Develop an understanding of the principles, concepts, challenges and opportunities of green urbanization and sustainable urban development
- Impart skills in designing sustainable urban development strategies that promote environmental, social, and economic sustainability
- Empower with evaluating the effectiveness of sustainable urban development strategies.
- Provide insights into the role of urban planning and policy in promoting green urbanization and sustainable urban development
- Gain importance of social equity and community engagement in green urbanization and sustainable urban development

Learning outcomes:

After the course, students will be able to

- Describe the principles and concepts of green urbanization and its linkages with sustainable development
- Design sustainable urban development strategies that promote environmental, social, and economic sustainability
- Evaluate and explain the effectiveness of sustainable urban development strategies and the role of urban planning and policy in promoting green urbanization
- Explain the importance of interdisciplinary and collaborative approaches to green urbanization and sustainable urban development
- Communicate and collaborate effectively with stakeholders in green urbanization and sustainable urban development projects

SYLLABUS OF DSE-EVS-13

Theory (02 Credits: 30 lectures)

UNIT – I Introduction to Green Urbanization and Sustainable Urban Design

(3½ Weeks) (7 lectures)

What is Green Urbanization?, Concept of sustainability in urbanization, Historical context and evolution of urbanization, Challenges and opportunities of Green Urbanization, Role of urban planning in promoting Green Urbanization

Principles of sustainable urban design, Importance of green spaces in urban areas, Role of urban design in promoting sustainable transportation, Importance of green infrastructure in urban areas, Urban heat island mitigation strategies

UNIT – II Sustainable Transportation (2 Weeks) (4 lectures)

Sustainable transportation planning and policy, Public transportation systems and infrastructure, Active transportation options and infrastructure (walking, biking), Electric vehicles and charging infrastructure, Transit-oriented development (TOD) and its benefits

UNIT – III Green Buildings and Energy Efficiency (2 Weeks) (4 lectures)

Principles of green building design, Energy-efficient building design and technologies, Role of building codes and standards in promoting green building, Renewable energy systems for urban areas, Green building certification programs and their benefits

UNIT – IV Sustainable Water Management (2 Weeks) (4 lectures)

Importance of sustainable water management in urban areas, Water conservation and efficiency strategies, Sustainable stormwater management, Water reuse and recycling strategies, Green infrastructure for stormwater management

UNIT –V Sustainable Waste Management (2 Weeks) (4 lectures)

Importance of sustainable waste management in urban areas, Strategies for reducing waste and increasing recycling, Composting and organic waste management, Waste-to-energy technologies and their benefits, Extended Producer Responsibility (EPR) and its role in sustainable waste management

UNIT –VI Social Equity and Financing Green Urbanization (3½ Weeks) (7 lectures)

Social equity-environmental justice-green urbanization, Community for sustainable urban planning, Strategies for affordable housing and sustainable development, Green spaces for all

Public-private partnerships for sustainable urban development, Green bonds and sustainable urban projects, Tax incentives for green urbanization, Green banks and financing for urban sustainability, Crowdfunding and for financing urban sustainability

Teaching and learning interface for theoretical concepts

To achieve the course objectives and match with the contents, a wide range of teaching and learning tools will be employed, including (a) Formal lectures; (b) Interactive sessions using visual aid; (c) Case study analyses; (d) Hypothetical scenario building; (e) Group discussion on key topics; and (f) documentary screening and critical analyses.

Practicals/Hands-on Exercises – based on theory (02 Credits: 60 hours)

1. Conduct a case study on a green urban development project and evaluate its effectiveness in promoting sustainability
2. Design a green infrastructure plan for a specific urban area, considering factors such as land use, vegetation, and water management
3. Develop a sustainable transportation plan for an urban area, incorporating options such as public transit, cycling, and walking
4. Conduct a building energy audit and recommend strategies for reducing energy consumption and increasing efficiency
5. Develop a green building certification programme and evaluate its potential benefits for promoting sustainable urban development.
6. Design a stormwater management plan for an urban area, incorporating green infrastructure and water reuse strategies
7. Conduct a waste audit and recommend strategies for reducing waste and increasing recycling in an urban area
8. Develop a green space plan for an urban area, considering factors such as biodiversity, recreation, and community engagement
9. Design a sustainable urban food system plan, considering factors such as local food production, distribution, and waste reduction
10. Conduct a social equity assessment of a green urban development project and recommend strategies for promoting equitable outcomes
11. Survey of public perceptions of green urbanization and evaluate the potential for public support
12. Develop a public outreach campaign to promote green urbanization and sustainability
13. Analyze the potential for green jobs and economic development in the green urbanization sector

Teaching and learning interface for practical skills

To impart training on technical and analytical skills related to the course objectives, a wide range of learning methods will be used, including (a) laboratory practicals; (b) field-work exercises; (c) customized exercises based on available data; (d) survey analyses; and (e) developing case studies; (f) demonstration and critical analyses; and (h) experiential learning individually and collectively.

Essential/recommended readings

- Abbott, C. (2021). *Greening cities in Asia: Governance, institutions and urban development*. Edward Elgar Publishing.
- Beatley, T. (2018). *Biophilic cities: Integrating nature into urban design and planning*. Island Press.
- González, J. A. (2020). *Green infrastructure in urban planning: A guide for practitioners*. Routledge
- Mahmood, A. (2020). *Green urbanism: Formulating a sustainable urban future*. Routledge.
- Roberts, P., & Sykes, O. (2018). *Urban green spaces: A complete guide to parks, gardens, and other outdoor spaces in towns and cities*. Routledge.

- Zhang, Y., & Lu, Y. (2021). *Smart and green urban development: New concepts and strategies for sustainable mobility*. Routledge.

Suggested readings

- Beatley, T. (2021). *Green urbanism down under: Learning from sustainable communities in Australia*. Island Press.
- Christensen, P., & Nilsson, K. (2020). *Sustainable urban development: A smart and green approach to city regeneration*. Palgrave Macmillan.
- Kabisch, N., Korn, H., Stadler, J., & Bonn, A. (2017). *Nature-based solutions to climate change adaptation in urban areas: Linkages between science, policy and practice*. Springer.
- Puppim de Oliveira, J. A. (2019). *Urban sustainability in the context of climate change: Adaptation, resilience, and opportunities in cities*. Springer.
- Zhang, Y. (2019). *Urban regeneration and sustainability: Best practices from European cities*. Routledge.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.