UNIVERSITY OF DELHI

Department of Home Science

Faculty of Science

I Year MSc. Resource Management and Design Application Department of Home Science University of Delhi

Course Credit Structure -NEP 2026

The department of home science offers master's programme in Resource Management & Design Application. This master's programme strives at empowerment through knowledge and skills towards management of personal, family, community and shared resources for creation of sensitive, aesthetic and sustainable environment. The programme strives to build a cadre of professionals in the area of sustainable management of resources and new product development. The courses are pitched at providing a strong theoretical base along with skill enhancement through hands-on training. The curriculum provides experiential training to students for professional and career readiness which enables students to participate in real life projects and develop the right skill set needed in a competitive market scenario.

Programme Specific Objectives:

- To build a cadre of professionals in the area of sustainable management of resources and new product development.
- To provide a strong theoretical base along with skill enhancement through hands-on training.
- To provide experiential training to students for professional and career readiness which enables students to participate in real life projects and develop the right skill set needed in a competitive market scenario.
- To train students to work in the areas of research, consultancy, programme, design, management and evaluation in various research and social development organizations

Programme Specific Outcomes:

- Professional and career readiness through participation in real life projects and develop the right skill set needed in a competitive market scenario.
- Enhanced entrepreneurial spirit through sounder management of facilities, marketing, finance and project management.
- Proficiency in various computer aided softwares along with design simulation thus giving a professional edge.
- Expertise in designing space and products using ergonomic, sustainable, economically and socio-culturally viable solutions with focus on life-cycle assessment approach.
- Proficiency in policies, practices and technologies for sustainable use of resources integrated with various dimensions and frameworks of environment management.

Course Credit Scheme M.Sc. Resource Management and Design Application

Programme Structure-1: (PG with only Coursework+ Research)

Semester	Core Courses		Elective Course		Research/ Project		Total Credits
	No. of courses	**Total credits**	No. of courses	**Total credits**	No. of courses	**Total credits**	
I	2	8	2	8	1	6	22
II	2	8	2	8	1	6	22
Total Credits for the course	16		16		12		44

List of PGCF courses of M.Sc. Resource Management and Design Application
(Semester I and II of the One-year programme)

List of Courses to be offered to students opting for Structure-1 of M.Sc. in 1st and 2nd Semester of one year course							
Type of Course	**Type**	**Semester**	**Name of the Courses**	**Credits in each course**			
				Lecture	**Tutorial**	**Practical**	**Total**
Semester – I							
Discipline Specific Core Course	DSC 1	I	Inclusive Design Systems	3	0	1	4
Discipline Specific Core Course	DSC 2	I	Corporate Social Responsibility & Sustainability Reporting	3	0	1	4
Discipline Specific Elective Course	DSE 1	I	From the Pool of DSEs given below## i. Statistics & Data Management ii. Sustainable Development: Policies & Practices iii. Advanced Spatial Planning Systems iv. Climate Change, Ecosystem, & Societies: Issues & Concerns v. Design Strategies & Audit vi. Health & Safety in Built Environment vii. Social Design Methods & Research	As per the specific course			4
Discipline Specific Elective Course	DSE 2	I		As per the specific course			4
Discipline Specific Elective Course	DSE 3	I		As per the specific course			4
Dissertation Project/ Entrepreneurship	DP 1	I	Dissertation/Academic project/ Entrepreneurship	0	0	6	6
Semester-II							
Discipline Specific Core Course	DSC 3	II	Entrepreneurship and Enterprise	2	0	2	4

			Management				
Discipline Specific Core Course	DSC 4	II	Financial Planning and Accounting Practices	3	0	1	4
Discipline Specific Elective Course	DSE 4	II	From the Pool of DSEs given below[##] viii. Energy Policy, Systems and Sustainability ix. Ergonomics & Occupational Safety Management x. Policies and Technologies for Waste Management xi. Professional Design Methods & Start-ups xii. Integrating Sustainable Development in Practice xiii. Design Processes in Built Spaces	As per the specific course			4
Discipline Specific Elective Course	DSE 5	II		As per the specific course			4
Discipline Specific Elective Course	DSE 6	II		As per the specific course			4

Pool of Discipline Specific Elective Courses to be offered in the 1st semester[#]	i. Statistics & Data Management
	ii. Sustainable Development: Policies & Practices
	iii. Advanced Spatial Planning Systems
	iv. Climate Change, Ecosystem, & Societies: Issues & Concerns
	v. Design Strategies & Audit
	vi. Health & Safety in Built Environment
	vii. Social Design Methods & Research
Pool of Discipline Specific Elective Courses to be offered in the 2nd Semester[##]	viii. Energy Policy, Systems and Sustainability
	ix. Ergonomics & Occupational Safety Management
	x. Policies and Technologies for Waste Management
	xi. Professional Design Methods & Start-ups
	xii. Integrating Sustainable Development in Practice
	xiii. Design Processes in Built Spaces

SEMESTER I

DISCIPLINE SPECIFIC CORE COURSE
INCLUSIVE DESIGN SYSTEMS

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 (if any)
		Lecture	Tutorial	Practical		
Inclusive Design Systems	4	3	0	1	As per admission norms	Nil

Learning Objectives

- To develop an understanding of the core concepts, principles, and legal frameworks of inclusive and universal design.
- To build the ability to assess interior and exterior environments for accessibility using structured tools and user-centered methods.
- To cultivate skills in identifying user needs especially for older adults and individuals with disabilities and translating them into inclusive design opportunities.
- To enable students to review, analyze, and propose context-appropriate inclusive design interventions supported by case studies, standards, and practical findings.

Learning Outcomes

After completing the course, students will be able to :

- Understand inclusive design concepts, principles, and accessibility standards.
- Identify user needs and barriers faced by diverse populations, especially persons with disabilities and the elderly.
- Develop the ability to assess spaces and products for accessibility and propose practical improvements.
- Demonstrate sensitivity, awareness, and critical thinking in applying inclusive design approaches to real-world contexts.

THEORY
(Credits 3; Hours 45)

UNIT I: Foundations of Inclusive Design **11 Hours**

This unit introduces students to the fundamental concepts, scope, and relevance of inclusive and accessible design, focusing on creating awareness of diverse human needs and abilities.

- Concept, scope, and importance of inclusive design.
- Understanding human variability and spatial needs of Persons with disabilities (PwDs).
- Differences and overlaps between Inclusive Design, Universal Design, and Conventional Design.
- Universal Design philosophy and its integration in built environments and products.

UNIT II: Dimensions, Principles, and User Diversity **12 Hours**

This unit deepens understanding of user diversity, principles of inclusive design, and the role of assistive technologies in enhancing usability for all population groups.

- Dimensions of Inclusive Design: physical, sensory, cognitive, and social.
- Principles of inclusive design and their practical applications.
- Frameworks for understanding user diversity and design personas.
- Assistive devices and emerging technologies for accessibility (mobility aids, communication devices, smart assistive tech).
- Inclusive design evaluation methods and user testing.

UNIT III: Accessibility in Interior and Exterior Spaces **11 Hours**

This unit focuses on spatial accessibility, inclusive architecture, and environmental design strategies for creating barrier-free indoor and outdoor environments.

- Concepts and methodologies for inclusive spatial design.
- Accessibility requirements for interior spaces (homes, public buildings, workspaces).
- Accessibility requirements for exterior spaces (streetscapes, parks, transport, public amenities).

UNIT IV: Legal, Policy and Ethical Landscape **11 Hours**

This unit examines regulatory frameworks and responsible design practice.

- Legal norms and standards: RPwD Act, BIS Codes, ISO standards.
- Government policies and initiatives promoting accessibility and universal design.
- Ethical considerations in designing for disability, aging, and vulnerable populations.
- Principles of responsible, participatory, and rights-based design approaches.

PRACTICAL

(Credits 1; Hours 30)

1. Conduct accessibility audits of selected indoor and outdoor spaces using structured checklists to identify physical, sensory, and navigational barriers affecting diverse users.
2. Map user experiences and activity flows for older adults and individuals with disabilities to identify unmet needs, challenges, and opportunities for inclusive design.
3. Analyze national and international aspects of inclusive architecture or built environments through secondary sources, highlighting effective design strategies and lessons for local application.
4. Apply tools and techniques for accessibility assessment, including barrier mapping, circulation analysis, and spatial observation, to evaluate real environments.
5. Review existing products, interior elements, or public-use items to identify inclusivity gaps and propose realistic improvements aligned with universal design principles.
6. Prepare a practical, inclusive design proposal based on user needs, audit findings, and legal accessibility guidelines

Essential Readings

UNIT I:

This unit introduces students to the fundamental concepts, scope, and relevance of inclusive and accessible design, focusing on creating awareness of diverse human needs and abilities.

- Nussbaumer, L. L. (2011). *Inclusive design: A universal need*. Bloomsbury Academic. ISBN 978-1563679216
- Steinfeld, E., & Maisel, J. L. (2012). *Universal Design: Creating Inclusive Environments*. Wiley.

UNIT II:

This unit deepens understanding of user diversity, principles of inclusive design, and the role of assistive technologies in enhancing usability for all population groups.

- Maisel, J. L., Steinfeld, E., Basnak, M., Smith, K., & Tauke, M. B. (2018). *Inclusive design: Implementation and evaluation*. Routledge.
- Gilbert, R. M. (2025). *Inclusive design for a digital world: Designing with accessibility in mind* (2nd ed.). Apress.

UNIT III:

This unit focuses on spatial accessibility, inclusive architecture, and environmental design strategies for creating barrier-free indoor and outdoor environments.

- Goodman-Deane, J., Dong, H., Heylighen, A., Lazar, J., & Clarkson, J. (Eds.). (2023). *Design for sustainable inclusion: CWUAAT 2023*. Springer.
- Preiser, W., & Smith, K. (2011). *Universal design handbook* (2nd ed.). McGraw-Hill.
- Gupta, A., Yadav, M., & Nayak, B. K. (2025). A Systematic Literature Review on Inclusive Public Open Spaces: Accessibility Standards and Universal Design Principles. Urban Science, 9(6), 181. https://doi.org/10.3390/urbansci9060181

UNIT IV:

This unit examines regulatory frameworks and responsible design practice.

- Nussbaumer, L. L. (2011). *Inclusive design: A universal need*. Bloomsbury Academic. ISBN 978-1563679216

Suggested Readings

- Langdon, P., Lazar, J., Heylighen, A., & Dong, H. (Eds.). (2020). Designing for inclusion: Inclusive design—Looking towards the future. Springer.
- Heylighen, A. (2020). Designing for disabilities: Inclusive architecture reconsidered. Routledge.

- Clarkson, J., Coleman, R., Keates, S., & Lebbon, C. (2003). Inclusive design: Design for the whole population. Springer.
- Ostroff, E. (2011). Universal design: Principles and models. Fair Housing Center.

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

DISCIPLINE SPECIFIC CORE COURSE
CORPORATE SOCIAL RESPONSIBILITY AND SUSTAINABILITY REPORTING

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 (if any)
		Lecture	Tutorial	Practical		
Corporate Social Responsibility and Sustainability Reporting	4	3	0	1	As per admission norms	Nil

Learning Objectives

- To understand the meaning, scope and importance of Corporate Social Responsibility (CSR)
- To learn about the policies, practices industry norms, potential business benefits, stakeholder influence with regard to CSR
- To learn about the planning, processes, implementation and monitoring of CSR activities
- To understand the need and benefits of sustainability reporting for businesses
- To learn about the various sustainability reporting guidelines

Learning Outcomes

After completing the course, students will be able to:

- Develop an understanding of the scope, approaches, policy and procedure of Corporate Social Responsibility (CSR)
- Understand planning, processes, implementation and monitoring of CSR projects through case studies
- Understand and evaluate CSR reports as per standard reporting guidelines
- Know about sustainability standards, indices and reporting guidelines

THEORY
(Credits 3; Hours 45)

UNIT I: Basics of Corporate Social Responsibility (CSR) 8 Hours

This unit aims at orienting the students towards the concept and importance of Corporate Social Responsibility (CSR), triple bottom line, and ESG

- Meaning, definition and importance of CSR
- History and evolution of CSR
- Sustainable businesses, triple bottom line, ESG (Environmental, Social and Governance)
- Practices and Initiatives for CSR, legal and economic perspective, theories, industry norms
- Global and Indian Scenario with Case studies

UNIT II: Corporate Social Responsibility: Policies and Practices 12 Hours

This unit aims to create an understanding on Indian legislations for CSR, UN guiding principles and SDGs, and other practices related to CSR.

- Indian legislations for CSR; Companies Act, 2013 and Amendments
- Global principles and guidelines for CSR (GRI framework, UN Global compact, CDP, OECD guidelines for multinational corporations, NVGs etc.)
- SDGs and CSR
- Globalization and CSR

UNIT III: CSR Activities: Planning and Strategizing 13 Hours

This Unit aims to create an understanding on planning and strategizing CSR activities.

- CSR planning and strategizing
- CSR and SMEs
- CSR Audit; issues related to CSR Audit
- Brand building through CSR communications

UNIT IV: Sustainability Reporting: Standards and Indices 12 Hours

This Unit aims to create an understanding towards the need and benefits of sustainability reporting and different sustainability reporting guidelines.

- Financial and non-financial disclosures, need and benefits of sustainability reporting
- Tools for stakeholder communication
- Sustainability Reporting Guidelines
- Structure of a sustainability report
- Sustainability reporting as per different guidelines

PRACTICAL
(Credits 1; Hours 30)

- CSR initiatives taken by corporates - Analysis through primary research
- Critical analysis of implementation strategies of CSR initiatives with reference to Foundation/Trust/Section 8 Companies etc.
- Planning innovative CSR Projects/Programmes in context of SDGs
- CSR communications: preparation of presentations, websites, print media, social media etc.
- Evaluation and preparation of CSR/sustainability/ESG reports with reference to different reporting guidelines like GRI, CDP, NVG etc.

Essential Readings:

UNIT I:

- Gupta, S. (2025). Corporate social responsibility and sustainable development goals for a developed India @2047. *Journal of Sustainable Business, 10*, 15. https://doi.org/10.1186/s40991-025-00118-1
- Debnath, P., & Chellasamy, P. (2022). An empirical study on issues and challenges of corporate social responsibility activities in India. *Asian Journal of Management, 13*(4), 345–350. https://doi.org/10.52711/2321-5763.2022.00056
- Institute of Directors India. (2020). *A Handbook on Corporate Social Responsibility, A Condensed Guide for Corporate Directors & Senior Executive*. Institute of Directors, New Delhi, India.

UNIT II:

- Mital, M., & Gupta, P. (Eds.). (2025). *Environmental Studies: Resources and Sustainability - A Textbook and Practical Manual.* Elite Publishing.
- Wirba, A. V. (2023). Corporate social responsibility (CSR): The role of government in promoting CSR. *Journal of the Knowledge Economy*, 1–27. https://doi.org/10.1007/s13132-023-01185-0
- Garg, K. (2021). *Corporate Social Responsibility (3rd edition)*. Bharat Law House Pvt. Ltd.

UNIT III:

- Lumde, N. (2024). *ESG and CSR: Strategies for Career Success and Corporate Responsibility*. Notion Press.
- Chandler, D. (2020). *Strategic Corporate Social Responsibility: Sustainable Value Creation.* SAGE Publications.

UNIT IV:

- Parikh, K. M. (2025). *ESG & BRSR Reporting*. Taxmann.
- Joseph, P. S. (2025). *A Guide to Sustainability Reporting in the Age of Greenwashing*. Self published.

Suggested Readings:

- Lumde, N. (2018). *Corporate Social Responsibility in India: A Practitioner's*

Perspective. Notion Press. ISBN-10: 1644295431, ISBN-13: 978-1644295434.

- Stangis, D., & Smith, K. V. (2017). *The Executive's Guide to 21st Century Corporate Citizenship: How your Company Can Win the Battle for Reputation and Impact*. Emerald Publishing Ltd.
- Mitra, N., & Schmidpeter, R. (2016). *Corporate Social Responsibility in India: Cases and Development after the Legal Mandate.* Springer International Publishing, Switzerland.
- Reddy, V. R., & Dheeraja, C. (2016). *The Six Essential Steps in Implementing CSR*. Studera Press, New Delhi.
- Ahluwalia, J. S. (2015). *Environmental Governance for Sustainability in Ahluwalia*, J. S. (Editor), Environmental Governance: Transition to a Green Economy, New Delhi, IOD Publishing
- Nielsen. (2015). *The Nielsen Global Survey of Corporate Social Responsibility and Sustainability*. Oxford, Nielsen.
- Chakrabarty, B. (2015). *CSR in India*. Routledge.
- Epstein, M. J., & Buhovac, A. R. (2014). *Making Sustainability Work: Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts*. Greenleaf Publishing Ltd.
- Korngold, A. (2014). *A Better World, Inc.: How Companies Profit by Solving Global Problems…Where Governments Cannot.* Palgrave Macmillan.
- Agarwal, S. (2013). *CSR in India*. SAGE Publications.
- Baxi, C. V. and Roy, R. S. (2011). *Corporate Social Responsibility,* Vikas Publishing House, New Delhi.
- Chatterji, M. (2011). *Corporate Social Responsibility*. Oxford University Press India; Reprint edition. ISBN-10: 0198069839, ISBN-13: 978-0198069836.

Journal articles (highly cited and relevant)

- Chatterjee, S., & Mirza, D. (2023). Sustainability reporting in India: A critical assessment of Business Responsibility Reports of the top 100 companies. *Sustainability Accounting, Management and Policy Journal*, *14*(7), 1541–1572.
- Thomas, R., & Bhaumik, A. (2023). ESG practices and firm performance in Indian listed companies. *Journal of Risk and Financial Management*, *16*(9), 405.
- Garg, P. (2024). Corporate responsibility (CSR), ESG goals and sustainable development in India—An analysis. *Corporate Social Responsibility in India* (pp. 115-132). Springer, Singapore.

- Mishra, M. K. (2020). Sustainability reporting practices of Indian corporate sector: A comparative analysis. *Journal of Business and Financial Affairs*, *9*(3), 375.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
STATISTICS AND DATA MANAGEMENT

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 (if any)
		Lecture	Tutorial	Practical		
Statistics and Data Management	4	3	0	1	As per admission norms	Nil

Learning Objectives

- To develop understanding of fundamental and advanced statistical concepts used in research and data analysis.
- To enable students to apply descriptive and inferential statistics for real-world decision- making.
- To strengthen ability to formulate hypotheses, select appropriate statistical tests, and interpret outputs.
- To prepare students for quantitative research, industry analytics, and academic data projects.
- To train students in using Excel and SPSS for data handling, visualization, and interpretation.

Learning Outcomes

The students would be able to:

- Explain key concepts in descriptive and inferential statistics.
- Organize, clean, and summarize datasets using appropriate statistical tools.
- Apply probability distributions, correlation, regression, and hypothesis testing.
- Use Excel and SPSS for data visualization, statistical testing, and reporting.
- Interpret statistical outputs and draw valid conclusions for research decisions.
- Design and execute quantitative data analysis workflows independently.

THEORY

(Credits 3; Hours 45)

UNIT I: Introduction and descriptive Statistics 12 Hours

This unit will introduces the foundations of statistics and techniques for summarizing and describing data.

- Definition, scope, and applications of statistics
- Types of data: qualitative and quantitative
- Scales of measurement
- Classification & tabulation of data
- Graphical and visual representations
- Measures of central tendency: mean, median, mode
- Measures of dispersion: range, variance, standard deviation, coefficient of variation
- Skewness and kurtosis: meaning and interpretation

UNIT II: Probability and Probability Distributions 10 Hours

This unit explores probability concepts and major statistical distributions.

- Basic probability concepts: Addition & multiplication theorems
- Random variables: discrete and continuous
- Binomial and Normal distributions
- Sampling theory & sampling distributions
- Central Limit Theorem

UNIT III: Correlation and regression 8 Hours

This unit focuses on analysing relationships between variables.

- Correlation: Pearson and Spearman correlation
- Simple linear regression: model, estimation, interpretation
- Multiple linear regression: assumptions, multicollinearity, model building

UNIT IV: Hypothesis Testing and Non-Parametric Methods 15 Hours

This unit introduces hypothesis testing frameworks and non-parametric alternatives for non-normal data.

- Concept of hypothesis: null & alternative
- Types of errors, significance levels, p-value
- Parametric tests:
    - z-test
    - t-test (one sample, independent, paired)
    - Chi-square test
- Non-parametric tests:
    - Mann–Whitney U test

  - Wilcoxon signed-rank test
  - Kruskal–Wallis test
- Interpretation and reporting of statistical results
- Research Conclusion and recommendation

PRACTICAL

(Credits 1; 30 hours)

1. Data Entry, Coding & Cleaning: Importing data, handling missing values, variable labels, Excel formulas.
2. Descriptive Statistics & Visualization: Mean, Standard Deviation, frequency tables, histograms, boxplots (Excel + SPSS).
3. Cross-Tabulation & Chi-Square Test: PivotTables in Excel; Crosstabs in SPSS.
4. Correlation Analysis: Pearson & Spearman correlations; scatterplots.
5. Simple Linear Regression: Trendline in Excel; Regression output in SPSS.
6. Multiple Regression: Model summary, coefficients, interpretation using SPSS.
7. t-Tests: Independent, paired, and one-sample t-tests in SPSS.
8. ANOVA (One-way & Two-way): Running ANOVA and post-hoc analysis.
9. Non-Parametric Tests: Mann-Whitney, Wilcoxon, Kruskal–Wallis in SPSS.
10. Report Generation & Interpretation
11. Preparing APA-style tables, graphs, and interpretations in Excel/SPSS.

Essential Readings:

UNIT I

This unit describes the foundations of statistics and techniques for summarizing and describing data.

- Agresti, A., & Franklin, C. A. (2009). *Statistics: The art and science of learning from data* (2nd ed.). Pearson Prentice Hall.
- Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Sage.
- Diez, D. M., Barr, C. D., & Cetinkaya-Rundel, M. (2015). *OpenIntro statistics* (3rd ed.). CreateSpace Independent Publishing Platform.
- Minium, E. W., King, B. M., & Bear, G. (2004). *Statistical reasoning for psychology and education*. Wiley.

UNIT II

This unit deals with the probability concepts, rules of probability, discrete and continuous distributions (Binomial, Poisson, Normal).

- Agresti, A., & Franklin, C. A. (2009). *Statistics: The art and science of learning from data* (2nd ed.).
- Diez, D. M., Barr, C. D., & Cetinkaya-Rundel, M. (2015). *OpenIntro statistics* (3rd ed.).
- Minium, E. W., King, B. M., & Bear, G. (2004). *Statistical reasoning for psychology and education*.

UNIT III

This unit focuses on relationship between variables, correlation coefficients, simple and multiple regression, regression assumptions.

- Agresti, A., & Franklin, C. A. (2009). *Statistics: The art and science of learning from data* (2nd ed.).
- Diez, D. M., Barr, C. D., & Cetinkaya-Rundel, M. (2015). *OpenIntro statistics* (3rd ed.).
- Muijs, D. (2004). *Doing quantitative research in education with SPSS*. Sage.

UNIT IV

The unit deals with statistical inference such as t-tests, ANOVA, Chi-square, non-parametric tests (Mann-Whitney, Wilcoxon, Kruskal-Wallis), decision making.

- Agresti, A., & Franklin, C. A. (2009). *Statistics: The art and science of learning from data* (2nd ed.).
- Diez, D. M., Barr, C. D., & Cetinkaya-Rundel, M. (2015). *OpenIntro statistics* (3rd ed.).
- Minium, E. W., King, B. M., & Bear, G. (2004). *Statistical reasoning for psychology and education*.
- Muijs, D. (2004). *Doing quantitative research in education with SPSS*.

Suggested Readings

- Field, A. (2025). *Discovering Statistics Using IBM SPSS Statistics* (6th ed.). Sage.
- Kalyanaraman, K., Ramanathan, H. N., & Harikumar, P. N. (2025). *Statistical Methods for Research: A Step-by-Step Approach Using IBM SPSS*. Atlantic Publishers.
- Healey, J. F., & Donoghue, C. (2021). *Statistics: A Tool for Social Research and Data Analysis* (11th ed.).

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DISCIPLINE SPECIFIC ELECTIVE COURSE

SUSTAINABLE DEVELOPMENT: POLICIES & PRACTICES

MANAGEMENT

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 (if any)
		Lecture	Tutorial	Practical		
Sustainable Development: Policies & Practices	4	3	0	1	As per admission norms	Nil

Learning Objectives

- To sensitize towards indicators and measures of sustainable development
- To give knowledge of and capacity to analyze policies and practices for sustainable development of different sectors
- To understand management strategies for noise, water, energy etc.
- To understand the components and techniques of EIA

Learning Outcomes

After completing the course, students will be able to :

- Gain insight into the need, indicators and measures of sustainable development along with challenges and responses
- Understand and critically analyze policies and practices regarding various sectors- air, water, agriculture, etc.
- Gain knowledge of water management systems, water quality parameters, rainwater harvesting
- Understand the components & techniques of EIA, legislative aspects, current practices & constraints

THEORY
(Credits 3; Hours 45)

UNIT I: Concept and dimensions of sustainable development 10 Hours

This unit covers throws light on the concept of sustainable development, its objectives and parameters.

- Concept of sustainability, dimensions of sustainability - social, economic and environmental
- Objectives and parameters of sustainable development
- Need and indicators of sustainable development
- Challenges and responses to Sustainable Development
- Evolution, approaches, interpretation of SDGs
- Environmental pollution and sustainability with reference to home, community and society

UNIT II: Water management: Practices, policies and technologies 12 Hours

This unit focuses on policies, practices and technologies for the management of water.

- Need and importance of water management systems, surface and ground water management
- Water pollutants, their sources, effect of water pollution on environment and health
- Water quality parameters, water pollution control strategies
- Waste water management systems: techniques and technologies
- Rainwater harvesting: need and principle

UNIT III: Air and noise management: Practices, policies and technologies 12 Hours

This unit focuses on policies, practices and technologies for the management of air and noise.

- Need and importance of air pollution management
- Air pollution, sources and effects on environment and health
- Ambient air quality standards, Air Quality Index (AQI)
- Controlling air pollution
- Noise pollution and management, standards for noise pollution, policy instruments for noise management

UNIT IV: Environmental Impact Assessment: Approaches & Techniques 11 Hours

This unit throws light on Environmental Impact Assessment (EIA) as an important practice for sustainable development.

- Environmental Impacts – examples, need for assessment, difficulties
- The EIA Approach – Background, Objectives, Components & Techniques

- Environmental impact assessment- importance, significance, steps, procedure to be followed, role of Government and non-governmental organizations
- EIA in India – Legislative aspects, Current practices & Constraints, way forward

PRACTICAL

(Credit 1; Hours: 30)

- Understanding Sustainable Development Goals (SDGs) with reference to India - Analysis through policy implementation, feedback from stakeholders etc.
- Government initiatives on sustainable development - Focus areas may include policy analysis, linkages of the identified policy with other goals (SDGs etc.), implementation challenges, outcomes and recommendations – Critical evaluation through primary research
- Monitoring of air quality, controlling air pollution and noise management – Analysis of the current scenario of the initiatives taken by the government and industry
- Water pollution control techniques and water treatment technologies – Analysis of the current scenario of the initiatives taken by the government and industry
- Study of water harvesting scenario in different states of India, Study of rain water harvesting systems – traditional and contemporary, Calculation of rainwater harvesting potential
- EIA for different sectors – Reviewing and preparing EIA reports

Essential Readings

UNIT I:

- Bhardwaj, A. (2024). *Sustainable Development in India: Future Challenges*. Shandilya Publications.
- Jana, K. (2023). *The Sustainable Development Goals in India: Few Issues & Contexts*. Redshine Publication.
- IPCC. (2023). *AR6 Synthesis Report: Climate Change 2023*. IPCC.
- Patel, B. N., & Nagar, R. (2018). *Sustainable Development and India.* Oxford University Press.

UNIT II:

- Mital, M., & Gupta, P. (Eds.). (2025). *Environmental Studies: Resources and Sustainability - A Textbook and Practical Manual.* Elite Publishing.

- Meena, M. L., Varale, Y., Upadhyay, K. K., & Talukdar, P. (2024). *Sustainable Water Management.* Bhumi Publishing.
- Grigg, N. (2023). *Water Resources Management: Principles, Methods, and Tools*. John Wiley & Sons: New Jersey.

UNIT III:

- Bhati, S. C. (2021). *Textbook of Air Pollution and its Control*. Atlantic.
- Yerramilli, A. (2019). *Air pollution: Prevention and Control Technologies*. BS Publications.

UNIT IV:

- Bhateria, R., Sharma, M., Singh, R., & Kumar, S. (2024). *Environmental Impact Assessment*. Springer.
- Dutta, V., & Ghosh, P. (Editors). (2023). *Sustainability: Science, Policy, and Practice in India: Challenges and Opportunities.* Springer.

Suggested Readings:

- Ristinen, R.A. and Kraushaar, J.J. (2006). *Energy and the Environment.* John Wiley & Sons, Inc., USA.
- Boyle, G. (2004). *Renewable Energy: Power for a Sustainable Future.* Oxford University Press, UK.
- Boyle, G., Everett, B. and Ramage, J. (Editors) (2003). *Energy Systems and Sustainability: Power for a Sustainable Future.* Oxford University Press, UK.
- Lee, N. and C. Kirkpatrick (Eds). (2000). *Integrated Appraisal and Sustainable Development in a Developing World.* Cheltenham, Edward Elgar.

Journal Articles (high citation index)

- Gupta, A., & Dikshit, A. K. (2020). Environmental and health impacts of air pollution: A review. *Frontiers in Public Health*, *8*, 14.
- Gulia, S., Goyal, S. K., Kumar, A., & C. S., P. (2021). Evolution of air pollution management policies and research gap assessment in India. *Science of The Total Environment*, *800*, 149594.
- Garg, N., & Maji, S. (2016). A retrospective view of noise pollution control policy in India: Status, proposed revisions and control measures. *Journal of Cleaner Production*, *133*, 1063–1078.

- Hadden, S. G. (1987). Environmental regulations, air and water pollution, and infant mortality in India. *Population and Environment*, *9*(2), 79–103.

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

DISCIPLINE SPECIFIC ELECTIVE COURSE
ADVANCED SPATIAL PLANNING SYSTEMS

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 (if any)
		Lecture	Tutorial	Practical		
Advanced Spatial Planning systems	4	2	0	2	As per admission norm	Nil

Learning Objectives

- This course focuses on methodological and technical approaches to planning spaces and their application in building interiors.
- The students will gain information and understanding of the social, psychological, and functional contexts that influence efficient movement patterns in contemporary space structuring.

Learning Outcomes

The students would be able to:

- Understand the concept of space design and its application in building interiors.
- Enable exploration of insights for a conducive socio-economic and environmental impact.
- Give technical inputs in professional interior designing of residential and commercial spaces.

THEORY
(Credits 2; Hours 30)

UNIT I: Designing Sustainable Spaces **8 Hours**

This unit focuses on the fundamental principles of advanced spatial planning and their relationship with sustainability and heritage.

- Structuring spaces for different uses
- Social and psychological context of space design
- Design efficiency in terms of the pattern of movement and functionality
- Green building design and audit, Energy efficiency in building construction, Modular system in construction of buildings

UNIT II: Restoration and Repair of Heritage properties **6 Hours**

This unit provides an introduction to the critical field of heritage conservation, focusing specifically on the technical and theoretical aspects of restoring historic structures.

- Types of heritage structures
- Role of agencies involved in restoration of heritage properties
- Elements of restoration
- Development of architectural styles and trends in India and around the world (Focus on Indian Palaces/Forts etc);

UNIT III: Space Designing for Interior Services **8 Hours**

This unit delves into the essential technical services required within a built space.

- Lighting design for different spaces
- False Ceilings: construction techniques
- Acoustics: Types of acoustic design and materials, sound transmission, reverberation, and propagation
- Air Conditioning: duct design and layout plan
- Fire safety: Types, Evacuation plans
- Types of security services in buildings

UNIT IV: Visual Merchandising and Window Display **8 Hours**

This unit introduces the art and science of Visual Merchandising (VM), focusing on its role in retail and customer engagement.

- Defining Visual Merchandising:

- Key Principles of Visual Merchandising:Color Psychology, Space Planning, Signage and Graphics, Lighting, Sensory Appeal.
- The Impact of Visual Merchandising on Customer Behavior
- Exploring and Understanding Company's Visual Design Policy
- Upselling via Window Display
- Understanding the Different Components that Contribute to Creating High Quality Window Displays
- Factors to be Considered When Creating a Professional Window Display

Essential Readings

UNIT I:

This unit focuses on the fundamental principles of advanced spatial planning and their relationship with sustainability and heritage.

- Alexander, C., Ishikawa, S., & Silverstein, M. (1977). *A pattern language: Towns, buildings, construction*. Oxford University Press.
- Ching, F. D. K. (2014). *Architecture: Form, space, and order* (4th ed.). John Wiley & Sons.
- Neufert, E. (2019). *Architects' data* (5th ed.). Wiley-Blackwell.
- U.S. Green Building Council. (2013). *LEED reference guide for building design and construction* (v4).

UNIT II:

This unit provides an introduction to the critical field of heritage conservation, focusing specifically on the technical and theoretical aspects of restoring historic structures.

- Borden, D., Elzanowski, J., Lawrenz, C., & Miller, T. (2008). *Architecture: A world history*. Abrams.
- Brown, P. (2010). *Indian architecture* (Vols. 1–2). D. B. Taraporevala Sons & Co.
- Indian National Trust for Art and Cultural Heritage. (2004). *Charter for the conservation of unprotected heritage and sites in India*. INTACH.
- Marshall, J. (1923). *Conservation manual: A handbook for the use of archaeological*

officers and others entrusted with the care of ancient monuments. Superintendent of Government Printing.

- Sharanappa. (2025). Role of UNESCO and ASI in the heritage conservation of India.

UNIT III:

This unit delves into the essential technical services required within a built space.

- ASHRAE. (2022). *ASHRAE design guide for duct systems*. American Society of Heating, Refrigerating and Air-Conditioning Engineers.
- Bureau of Indian Standards. (2016). *National building code of India 2016* (Vol. 1 & 2).
- Chudley, R., & Greeno, R. (2020). *Building construction handbook* (12th ed.). Routledge.
- Editors of Cool Springs Press. (2017). *Black & Decker: The complete guide to finishing walls & ceilings*. Cool Springs Press.
- Konstantzos, I., Sadeghi, S. A., Kim, M., Xiong, J., & Tzempelikos, A. (2020). The effect of lighting environment on task performance in buildings – A review. *Energy and Buildings*, *226*, Article 110394. https://doi.org/10.1016/j.enbuild.2020.110394
- Templeton, D. (Ed.). (1999). *Acoustics in the built environment: Advice for city planners and architects* (2nd ed.). Architectural Press.

UNIT IV:

This unit introduces the art and science of Visual Merchandising (VM), focusing on its role in retail and customer engagement.

- Bellizzi, J. A., Crowley, A. E., & Hasty, R. W. (1983). The effects of color in store design. *Journal of Retailing*, *59*(1), 21–45.
- Huddleston, P., Behe, B. K., Minahan, S., & Fernandez, R. T. (2015). The effect of visual merchandising on consumer impulse buying behavior. *The International Review of Retail, Distribution and Consumer Research*, *25*(1), 69–88. https://doi.org/10.1080/09593969.2014.911199
- Pegler, M. M., & Kong, A. (2018). *Visual merchandising and display* (7th ed.). Fairchild Books.

- Underhill, P. (2009). *Why we buy: The science of shopping* (Updated and rev. ed.). Simon & Schuster.

Suggested Readings

- Kibert, C. J. (2016). *Sustainable construction: Green building design and delivery* (4th ed.). Wiley.
- Ching, F. D. K . (2014). Building Construction Illustrated, Wiley, New Jersey
- DeChiara, J., Panero, J. & Zelnik, M. (2011). Time Saver Standards for Interior Design and space planning, second edition. McGraw-Hill Education
- Goel, S., Seetharaman, P. & Kakkar, A. (2015). Manual on Interior space designing, Elite publishing house
- Shah, M. G., Kale, C. M., Building drawing, 5th edition, Tata McGraw Hill publishing, New Delhi.

PRACTICAL

(Credits 2; Hours 60)

1. Conduct a survey to analyze and document the evolution of design practices, specifically focusing on how new design solutions are implemented to reflect and meet changing user needs.
2. Undertake site visits to physically examine and study various examples of existing structures and spaces, documenting different types of designs that demonstrate exceptional user-friendliness and accessibility.
3. Produce detailed presentation drawings, including floor plans, for diverse commercial and public interior spaces such as retail offices, hotel public areas, stand-alone restaurants, gymnasiums, health clubs, and sports complexes.
4. Generate comprehensive working drawings covering interior service plans, including Electrical layouts, reflected ceiling plans, wall treatment specifications for temperature control and acoustics, electrical planning details, and other furnishing and perspective drawing specifics.
5. Investigate and evaluate the concept of wash fastness in materials, which refers to a material's resistance to color loss or fading when exposed to washing.
6. Perform case studies and surveys on organizations that successfully foster creativity, innovation, and new venture creation, focusing on emerging technological and industrial trends that disrupt markets and influence business decisions.

7. Identify potential business opportunities based on emerging industry trends and subsequently develop detailed business plans outlining strategies for market entry, operation, and growth.
8. Engage in design exploration by examining different themes influenced by culture, specific occasions, and brand identity, and then create theme-based mood boards to guide the design of promotional displays.
9. Detailed plans for display areas by strategically understanding and implementing effects created by lighting schemes, mannequin grouping, color usage, and establishing effective focal points. This also includes the assessment, evaluation, and budgeting for the display area.
10. Create detailed technical designs for visual displays, using software like AutoCAD 2D and Photoshop for both 2D and 3D display concepts. This includes developing signage and graphics, designing lighting plans to create specific focal points, and carefully selecting suitable coverings, props, and merchandise.

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

DISCIPLINE SPECIFIC ELECTIVE

CLIMATE CHANGE, ECOSYSTEM & SOCIETY: ISSUES & CONCERNS

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 (if any)
		Lecture	Tutorial	Practical		
Climate Change, Ecosystem & Society: Issues & Concerns	4	3	0	1	As per admission norms	Nil

Learning Objectives

- To impart knowledge about science and policy of climate change along with climate vulnerabilities on different systems
- To understand the adaptation and mitigation strategies to deal with climate change for different sectors
- To learn about the policy framework for controlling climate change

Learning Outcomes

After completing the course, students will be able to:

- Understand concept of climate change, components of climate change system, global warming-causes and consequences
- Understand vulnerabilities and impact of climate change on different systems
- Gain insight into adaptation and mitigation strategies for different sectors
- Understand policies and programs –global and national to control climate change

THEORY
(Credits 3; Hours 45)

UNIT I: Concept, components and science of climate change **11 Hours**

This unit covers throws light on the history and components of climate change.

- History and evidence of climate change
- Natural and human induced causes of climate change
- Components of climate change system, Biosphere and geosphere
- Biogeochemical/Nutrient cycles
- Climate change, ecosystem and society

UNIT II: Climate Change-global-regional scenario and gender perspective 10 Hours

This unit throws light on recent issues, global scenario and gender perspective in climate change

- Recent issues in climate change (ozone hole, melting of glaciers, atmospheric brown clouds)
- Global scenario, climate resilience, natural resource management, future impacts of climate change
- Global warming- causes, consequences, greenhouse effect and greenhouse gases
- Gender perspectives on climate change

UNIT III: Vulnerabilities, adaptation and mitigation options for climate change 12Hours

This unit focuses on impacts of climate change and vulnerable sectors along with adaptation and mitigation strategies.

- Impacts of climate change along with sectoral vulnerabilities on both natural and managed systems both present and projected on various sectors - Agriculture, forestry and bio-diversity; Human health, infrastructure, industry; Water resources, sea level rise; Extreme events
- Adaptation options for various sectors, factors affecting adaptation, strategies, constraints and consequences
- Mitigation strategies for various sectors, stabilisation scenario, mitigation options, programmes and initiatives, mitigation and sustainable development linkages
- Climate change mitigation programmes in energy and industry sector, Case studies with focus on India
- Recent issues in climate change, future impacts of climate change

UNIT IV: Policies and programs for controlling climate change 12 Hours

This unit throws light on the policy environment for climate change, both national and international.

- International efforts and policy frameworks - history, objectives, activities, equity issues, key issues in multilateral negotiations on climate change, international protocols, role and outcomes of UNFCCC, IPCC
- India's national policy framework, NAPCC-targets and achievements, PAT (Perform, Achieve, and Trade) scheme, Forest certification (FSC, SFI, PEFC)
- CO_2 sequestration, forests and other sinks in India, opportunities and concerns
- The global carbon market, Carbon Pricing, Carbon Tax, Emission reduction certificates

PRACTICAL

(Credit 1; Hours: 30)

- Climate change: causes, impacts, adaptation and mitigation strategies for different sectors – Review, analysis and creation of portfolio
- Conducting survey on assessing awareness about climate change related issues among different target groups
- Critically analyzing measures adopted by large industries to reduce their Greenhouse Gas (GHG) emissions through appraisal of mitigation and adaptation practices to climate change through industry cluster approach
- Adaptation and mitigation strategies/initiatives taken by central and state governments to tackle climate change - Analysis through policy implementation, feedback from stakeholders etc.
- Regional climate vulnerabilities and adaptation and mitigation strategies - Critical analysis with focus on different states and geographical locations
- Designing/developing and conducting need based training/awareness generation programs for different target groups towards lifestyle changes for reducing carbon footprint/climate change

Essential Readings:

UNIT I:

- Singh, A. K. (2023). *Global Warming and Climate Change : Story of India's Climate Disaster and How to Avoid it.* Chennai, India: Notion Press Media Pvt Ltd.

- Clack, T., Meral, Z., & Selisny, L. (2023). *Climate Change, Conflict and (In)Security: Hot War*. Routledge.
- IPCC. (2023). *AR6 Synthesis Report: Climate Change 2023*. IPCC.

UNIT II:

- Khare, N. (2025). *Climate Change in India: Impacts and Assessments*. CRC Press.
- Mital, M., & Gupta, P. (Eds.). (2025). *Environmental Studies: Resources and Sustainability - A Textbook and Practical Manual.* Elite Publishing.
- Ramesh, M. (2018). *The Climate Solution: India's Climate Change Crisis and What We Can Do About It.* Hachette India.

UNIT III:

- Srivastava, R. K., & Chakraborty, A. (Eds.). (2025). *Mitigation and Adaptation Strategies Against Climate Change in Natural Systems.* Springer.
- Sabel, C. F., & Victor, D. G. (2022). *Fixing the Climate: Strategies for an Uncertain World.* Princeton University Press.

UNIT IV:

- Kedia, S., Khanna, P., Raj, S., Amanuma, N., & Gupta, H. (2024). *Synergies between Climate Action and SDGs: Implications for Multilateralism*. SDG Charter, Act4Earth, and World Sustainable Development Summit. New Delhi: The Energy and Resources Institute.
- Deutscher, G. (2023). *Climate Debt: Combining The Science, Politics and Economics of Climate Change.* World Scientific Publishing Co Pte Ltd.

Suggested Readings:

- Agarwal, S.K. (2003). *Environmental Scenario for 21st Century*. New Delhi: APH.
- Hardy, J. (2003). *Climate Change: Causes, Effects and Solutions*. John Wiley & Sons.
- Kelkar, U., & Bhadwal, S. (2007). South Asian Regional Study on Climate Change Impacts and Adaptation: Implications for Human Development. Human Development Report 2007/2008. Fighting Climate Change: Human Solidarity in a Divided World. Human Development Report Office, Occasional Paper.
- Kovats, S., & Akhtar, R. (2008). Climate, climate change and human health in Asian cities. Environment and Urbanization 29 (1): 165-175.

- Pittock, B. (2009). Climate change: The science, impacts and solutions 2nd edition. CSIRO, Melbourne, and Earthscan, London.

Journal article (highly cited and relevant):

- Dubash, N. K. (2011). The politics of climate change in India: Power, interest and contested development. *IDS Bulletin*, *42*(2), 97–106.
- Singh, C., & Deshpande, T. (2016). How do we assess vulnerability to climate change in India? A systematic review of literature. *Mitigation and Adaptation Strategies for Global Change*, *21*, 1083–1106.
- Gulia, S., Goyal, S. K., Kumar, A., & C. S., P. (2021). Evolution of air pollution management policies and research gap assessment in India. *Science of The Total Environment*, *800*, 149594.

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DISCIPLINE SPECIFIC ELECTIVE
DESIGN STRATEGIES & AUDIT

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 (if any)
		Lecture	Tutorial	Practical		
Design Strategies & Audit	4	2	0	2	As per admission norms	Nil

Learning Objectives

- Develop the ability to identify design problems and propose effective solutions for specific products or situations.
- Equip students with the skills to integrate sustainable design principles in products and services.
- Enhance analytical skills through design audits to assess the feasibility, viability, and

sustainability of designs.

Learning Outcomes

After completing this course, students will be able to:

- Recognize design challenges and apply a life-cycle assessment approach to find suitable solutions.
- Assess and evaluate designs for safety, ergonomics, functionality, and sustainability through product audits.

THEORY
(Credits 2; Hours 30)

UNIT I: Product Semantics and User Experience **8 Hours**

This unit delves into product semantics, the emotional connection between users and products, and the development of a logical design approach.

- Theories of product semantics and their effect on design.
- Exploring product emotion, value, and attachment.
- Understanding product identity and its role in design.
- Usability and enhancing user experience through design.

UNIT II: Design as a Management Tool and Professional Practices **6 Hours**

This unit focuses on the managerial aspects of design, including the evaluation process, team management, and professional ethics in design practices.

- Design evaluation, key designer attributes, and setting up a design office.
- Client relations, business correspondence, and managing the design process.
- Human factors in team management and design workflow.
- Legal aspects including ethics, design briefs, costing, patent registration, and fee estimation.

UNIT III: Product Interface Design **10 Hours**

This unit covers designing and evaluating product interfaces with a focus on user-centered design, ergonomics, prototyping, and interaction within complex systems.

- Visual, functional, and ergonomic requirements of product interface design.
- Human factors and the importance of user-centered and participatory design.
- Scenario building, storyboarding, and prototyping for interactive design.

- Evaluating user interfaces and designing for complex system

UNIT IV: Product Analysis and Audit **6 Hours**

This unit highlights analyzing products, understanding contextual applications, evaluating design guidelines, and conducting design audits.

- Product analysis- diachronic and synchronic
- Understanding and analysing contexts – parallel and future situations
- Evaluation of design guidelines
- Design audit

Essential Readings

UNIT I:

This unit delves into product semantics, the emotional connection between users and products, and the development of a logical design approach.

- Krippendorff, K. (2006). *The Semantic Turn: A new foundation for design*. Boca Raton, London, New York: Taylor & Francis, CRC Press.
- Norman, D.A. (2004). *Emotional Design: Why we love (or hate) everyday things*. New York, NY: Basic Books.

UNIT II:

This unit focuses on the managerial aspects of design, including the evaluation process, team management, and professional ethics in design practices.

- John, T. (2005). In the bubble: designing in a complex world
- Agarwal, U. A., Jain, K., Anantatmula, V., & Shankar, S. (2023). *Managing people in projects for high performance: Behavioural approach to productive project teams*. Springer.

UNIT III:

This unit covers designing and evaluating product interfaces with a focus on user-centered design, ergonomics, prototyping, and interaction within complex systems.

- Rangaswamy, N., Sim, G. R., & Borah, P. P. (Eds.). (2025). *Human-Computer Interaction: Design and Research* (Vols. I & II). Springer.
- Khan, M. I. (2025). *Industrial ergonomics*. PHI Learning.
- Ghosh, A. (2024). *Mastering UX design with effective prototyping*. BPB Publications.

- Gandotra, V. et al. (2013). *Essentials of Ergonomics*, Dominant Publishers: Delhi
- William, L. (2003). *Universal Principles of design*, Rockport.

UNIT IV:

This unit highlights analyzing products, understanding contextual applications, evaluating design guidelines, and conducting design audits.

- Gander, C., & Vaidya, S. (2024). *Think like the minimalist*. Penguin Business.
- Tiwari, S. R., & Swarup, R. R. (2024). *Design thinking: A comprehensive textbook*. Wiley India.
- Jain, K., & Kalbande, A. (2023). *UI design: Key to captivate user understanding*. Sybgen Learning.

Suggested Readings:

- Jordan, Pat. (1998*). Human Factors in Product Design: Current Practice and Future Trends.* London: Taylor and Francis.
- Macleod, Dan. (1995). *The Ergonomics Edge: Improving Safety, Quality and Productivity.* New York: Nostrand Reinhold.
- Mugge, R. (2008). *Emotional Bonding with Products: Investigating Product Attachment from a Design Perspective*. VDM Verlag
- Norrid, B and Wilson, J.R. (2001). *Designing Safety into Products*. London: Taylor and Francis.
- Wilson, J.R. and Covlett, N. (2001). *Evaluation of Human Work: A Practical Ergonomics Methodology*. London: Taylor and Francis

PRACTICAL

(Credits 2; Hours 60)

1. Product Design Audit: Conduct a critical design audit of an existing product, evaluating aesthetics, functionality, and usability.
2. Sustainability Assessment: Perform a sustainability audit on a product, analyzing materials, energy use, and environmental impact.
3. Safety Evaluation: Assess a product for safety compliance and potential hazards, proposing improvements.

4. Ergonomic Analysis: Examine a product for ergonomic efficiency and user comfort, suggesting design modifications.
5. User interface design portfolio
6. Critical evaluation of existing product
7. Finding solution to design problems
8. Sketches and design of improvised product
9. Prototyping new product based on improvised design of user-interface
10. Working on variations or different formats of the new product

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

DISCIPLINE SPECIFIC ELECTIVE COURSE
HEALTH & SAFETY IN BUILT ENVIRONMENT

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 (if any)
		Lecture	Tutorial	Practical		
Health & Safety in Built Environment	**4**	**2**	**0**	**2**	**As per admission norms**	**Nil**

Learning Objectives

- To sensitize the students towards concept of health & safety in built environment with specific reference to indoor environment
- To build the ability to identify, assess, and manage risks related to air quality, thermal comfort, lighting, noise, and exposure to hazards.
- To equip students with practical knowledge of human health risk assessment and safety management practices relevant to buildings and indoor spaces.

Learning Outcomes

After completing the course, students should be able to:

- Explain how indoor environmental factors such as air quality, temperature, humidity, lighting, and acoustics influence human health and comfort.

- Understand the health and safety issues in built environment with respect to indoor environment quality
- Develop skills to carry out risk assessment and vulnerability analysis
- Get acquainted to environmental and safety management

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to concept of built environment **7 Hours**

This unit introduces the built environment through a sustainability lens, highlighting systems thinking, interdependencies, and cross-sectoral approaches.

- Definition and components of built environment
- Whole house approach to built environment
- Introduction to safety and health issues in built Environment
- Impact of physical planning and zoning on health and safety

UNIT II: Fundamentals of the Indoor Environment **8 Hours**

This unit explores key parameters of indoor environmental quality and how they influence comfort, health, and productivity. Students learn to connect theory with real-world building performance.

- Indoor environment parameters: IAQ, Thermal comfort, Lighting and Acoustics
- Health and comfort in the indoor environment
- Indoor air pollution – causes, effects, prevention & control technologies
- Standards pertaining to IAQ guidelines (e.g., ASHRAE, ISHRAE, USEPA, WHO etc.)
- Management of the indoor environment
- Impact of IEQ on occupants' health and productivity

UNIT III: Human Health Risk Assessment (HHRA) **8 Hours**

This unit focuses on turning analysis into practical action. Students learn frameworks for evaluating health risks and planning interventions for real situations.

- Introduction to Human Health Risk Assessment with reference to indoor and outdoor spaces

- Steps in Human health Risk Assessment: Risk identification, Exposure Assessment, Dose-Response Relationship, Risk Communication, Quantification of Human Health Risk Assessment, Human Health Risk Assessment with respect to air, water, soil and water pollution
- Introduction to Social and Environmental Risk Screening

UNIT IV: Environment and Safety Management **7 Hours**

This unit explains how safety and sustainability practices are integrated into organisational systems, governance processes, and reporting frameworks.

- Review and comparison of Global and Indian legal provisions related to Occupational Safety and Health including OSHA and Factories Act
- Introduction to HAZOP and HCCA Studies
- The Total Quality Environment Management
- Introduction to Total Productive Maintenance (TPM), Pillars of TPM

PRACTICAL
(Credits 2; Hours 30)

1. **Mapping the built environment of a campus zone**: Mapping the built environment of a campus zone: Identification of key built-environment components (land use, circulation paths, green/open spaces, building footprints, and service areas) on sketches or existing floor/site plans, and annotation of associated health and safety implications such as noise, traffic exposure, and crowding. Preparation of a labelled map and a brief note summarising major risks and suggested improvements.

2. **Planning and zoning critique exercise:** Comparative review of photographs and plan excerpts from two contrasting neighbourhoods or campuses to examine physical planning and zoning features such as setbacks, mixed land use, open/green space, and traffic separation. Discussion and short written reflection on the likely impacts of these features on walkability, safety, and indoor environmental quality.

3. **Indoor environment parameter profiling:** Recording and interpretation of secondary or provided data for key indoor environmental parameters (temperature, relative humidity, noise levels, illuminance, and CO_2/$PM_{2.5}$) in a classroom or laboratory setting. Comparison of observed

values with ASHRAE/ISHRAE/WHO benchmark ranges and completion of a short worksheet on expected comfort, health implications, and likely occupant complaints.

4. **Demonstration Session and Hands on Activity on IAQ Monitor:** Hands on experience on measuring and interpreting indoor air quality data using monitoring tools.

5. **Ventilation and layout assessment:** Analysis of room layout drawings to identify air flow paths, locations of windows and doors, occupancy density, and potential stagnant zones. Marking of likely indoor air quality and thermal comfort issues and preparation of brief recommendations for low-cost improvements such as changes in openings, use of fans, and revised seating layout.

6. **Design of a training module on "Health & Safety in Indoor Environments":** Small-group exercise in which students develop a short training package for facility managers or school/office staff, integrating concepts from all units on built environment, indoor environmental quality, health risk, and safety management. The activity involves identifying key indoor hazards (e.g., poor ventilation, inadequate lighting, noise, crowding), selecting appropriate control measures, and tailoring messages to non-technical audiences

7. **Screening environment for social and environmental risks**: Practical assessment of built spaces to identify risks that affect communities and ecosystems using standardised checklists. Analysing and reporting the results.

8. **Total Quality Environment Management (TQEM) walk-through:** Design of a brief TQEM checklist for an educational or office building focusing on environmental performance and safety (waste handling, energy use, indoor air quality, noise, water use, emergency readiness). In small groups they conduct a walk-through audit, rate performance on each item, and write a short report summarising strengths, non-conformities, and priority corrective actions.

Essential Readings:

UNIT I: Introduction to concept of built environment

- Corburn, J., & Cohen, A. K. (2023). *The built environment and public health* (2nd ed.). Wiley.
- Dovjak, M., & Krainer, A. (2019). *Creating healthy and sustainable buildings: An assessment of health risk factors.* Springer.

- Lopez, R. P. (2023). *The built environment and public health (2nd ed.)*. John Wiley & Sons.

UNIT II: Fundamentals of Indoor Environment

- Datta, A., Kumar, P., Sharma, A., & Patel, D. (2023). *Indoor environmental quality in Indian non-residential buildings: Implications for occupants' health and comfort.* Building and Environment, 242, 110550.
- World Health Organization. (2010). *WHO guidelines for indoor air quality: Selected pollutants.* WHO.

UNIT III: Human Health Risk Assessment (HHRA)

- Dwivedi, S., et al. (2023). *Revelations to indoor air pollutants and health risk among women: A systematic review*. Environmental Challenges, 11, 100649.
- Felgueiras, F., Almeida, R. M. S. F., & Gameiro da Silva, M. (2023*). Indoor environmental quality in offices and risk of health symptoms: A review.* Building and Environment, 237, 110360.

UNIT IV: Environment and Safety Management

- Ministry of Labour & Employment, Government of India. (2025). *Key features of the OSH Code, 2020: Implementation primer*. India Briefing.
- PQRI. (2015). *HAZOP guide: Best practices for hazard and operability studies*. Product Quality Research Institute.
- Six Sigma Development Solutions. (2025). *8 pillars of total productive maintenance (TPM): A practical guide for manufacturing and facilities.* SixSigmaDSI.

Suggested Readings:

- Allen, J. G., & Macomber, J. D. (2020). *Healthy buildings: How indoor spaces drive performance and productivity.* Harvard University Press. library
- Burroughs, H.E.& Hansen, S. J. (2011*). Managing Indoor Air Quality*, 5th Edition.
- Datta, A., Kumar, P., Sharma, A., & Patel, D. (2023). *Indoor environmental quality in Indian non-residential buildings: Implications for occupants' health and comfort*. Building and Environment, 242, 110550.
- Green, R., & Parry, M. (2022). Built environment, climate resilience, and health: An emerging research agenda. *Journal of Environmental and Public Health*, Article 8897654.

- Mirzaei, N., Arfaei, N., & Yarahmadi, H. (2020). The impact of indoor environmental quality of green buildings on occupants' health: A systematic review. *Journal of Community Health Research,* 9(1), 54–65.
- REHVA. (2023). Indoor environmental quality and healthy buildings. *REHVA Journal.*

Journal articles (highly cited and relevant)

- Kent, J., & Thompson, S. (2012). Health and the built environment: Exploring foundations for a new interdisciplinary profession. *Health Promotion Journal of Australia,* 23(3), 163–170.
- World Health Organization, & UN-Habitat. (2011*). The built environment and health: An evidence review.* World Health Organization.
- Sharma, M., Khare, M., & Singh, S. (2025). Indoor particle number concentration measurements and associated exposure in Indian urban buildings. *Sustainable Cities and Society,* 112, 105084

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

DISCIPLINE SPECIFIC ELECTIVE
SOCIAL DESIGN METHODS AND RESEARCH

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 (if any)
		Lecture	Tutorial	Practical		
Social Design Methods and Research	4	3	0	1	As per admission norms	Nil

Learning Objectives

- To understand the foundations, evolution, and global relevance of social design in addressing poverty, inequality, and sustainability.
- To learn key principles of human-centered, participatory, and inclusive design for working with diverse and marginalized communities.
- To gain knowledge of qualitative and quantitative research methods, ethical considerations,

and their role in social design.

- To explore social innovation, systems thinking, CSR, and sustainability as frameworks for designing socially impactful solutions.

Learning Outcomes

- Students will be able to explain core concepts of social design, including its evolution, purpose, and relevance to contemporary social challenges.
- Students will demonstrate an understanding of inclusive and participatory design principles and their application to marginalized groups.
- Students will understand and differentiate qualitative and quantitative research methods and apply ethical considerations in design research.
- Students will be able to analyse social innovation models, CSR initiatives, and sustainability concepts to evaluate socially responsible design practices.

THEORY

(Credits 3; Hours 45)

UNIT I: Foundations of Social Design and Inclusive Research **11 Hours**

This unit introduces the basics of social design, highlighting inclusive principles and ethical research methods for understanding social needs.

- Social Design Overview: Definition, evolution, and global challenges (poverty, inequality, sustainability)
- Design Principles: Human-centered, participatory, and inclusive design for social impact
- Research Methods: Integrating qualitative and quantitative methods; ethical considerations in social design.

UNIT II: Inclusivity, CSR, and Traditional Knowledge in Social Design **11 Hours**

This unit focuses on designing for marginalized groups while integrating CSR practices and preserving traditional design knowledge.

- Inclusivity in Design: Designing for marginalized groups (elderly, differently-abled, low-income).
- Corporate Social Responsibility (CSR): Role of design in CSR for social well-being and environmental responsibility.
- Preserving Traditional Designs: Safeguarding indigenous practices and integrating traditional knowledge in modern design.

UNIT III: Social Innovation, Systems Thinking, and Sustainability 11 Hours

This unit explores how design drives social innovation through systems thinking and sustainable approaches with measurable impact.

- Social Innovation: Design's role in driving social change and addressing societal needs.
- Design Thinking & Systems Thinking: Approaches for creating scalable, sustainable solutions.
- Sustainability: Environmental, social, and economic sustainability in design projects; measuring social impact with assessment tools.

UNIT IV: Applications of Social Design in Communities and Public Spaces 12 Hours

This unit examines practical applications of social design in communities, public spaces, CSR initiatives, and advocacy.

- Community Empowerment: Engaging communities in participatory design for sustainable solutions.
- Inclusive Public & Health Spaces: Designing safe, accessible public spaces and environments that enhance physical and mental well-being.
- CSR & Advocacy in Design: CSR-based interventions (education, housing, sustainability) and using design for policy influence, social justice, and human rights.

Essential Readings

UNIT I:

This unit introduces the basics of social design, highlighting inclusive principles and ethical research methods for understanding social needs.

- Manzini, E. (2015). Design, when everybody designs: An introduction to design for social innovation. MIT Press.
- Brown, T., & Wyatt, J. (2009). Design Thinking for Social Innovation. Stanford Social Innovation Review, 8(1), 31–35. https://doi.org/10.48558/58Z7-3J85

UNIT II:

This unit focuses on designing for marginalized groups while integrating CSR practices and preserving traditional design knowledge.

- Noel, L.-A. (2023). *Design social change: Strategies for equity, inclusion, and belonging*. Ten Speed Press.
- National Institute of Urban Affairs. (2020). *An accessible, safe and inclusive city*. NIUA, Government of India.

- Ministry of Culture, Government of India. (2019). *Scheme for safeguarding the intangible cultural heritage*. Government of India.
- National Institute of Design. (2017). *Craft traditions of India*. National Institute of Design.
- Papanek, V. (2009). Design for the real world: Human ecology and social change (2nd ed.). Thames & Hudson.

UNIT III:

This unit explores how design drives social innovation through systems thinking and sustainable approaches with measurable impact.

- Manzini, E. (2015). Design, when everybody designs: An introduction to design for social innovation. MIT Press.
- Halse, J., Brandt, E., Clark, B., & Binder, T. (2010). Rehearsing the future: Social design experiments in innovation and democracy. Danish Design School Press.

UNIT IV:

This unit examines practical applications of social design in communities, public spaces, CSR initiatives, and advocacy.

- Amatullo, M., Boyer, B., May, S., & Shea, A. (Eds.). (2023). Design for social innovation: Case studies from around the world. Routledge.
- Government of India. (2015). *Accessible India campaign (Sugamya Bharat Abhiyan)*. Ministry of Social Justice and Empowerment.
- IDEO.org. (2015). The field guide to human-centered design. IDEO.org.
- Steinfeld, E., & Maisel, J. L. (2012). *Universal design: Creating inclusive environments*. Wiley.

Suggested Readings

- Melles, G. (Ed.). (2022). *Designing social innovation for sustainable livelihoods*. Springer.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2018). The SAGE handbook of qualitative research (5th ed.). SAGE.
- Silverman, D. (2017). Doing qualitative research (5th ed.). SAGE.
- Muratovski, G. (2016). Research for designers: A guide to methods and practice. SAGE.
- Martin, B., & Hanington, B. M. (2012). Universal methods of design: 100 ways to research complex problems, develop innovative ideas, and design effective solutions. Rockport.

PRACTICAL

(Credits 1; Hours 30)

1. Structured user research and insight building: Conduct surveys, interviews, focus groups, or mapping exercises to understand user needs, barriers, and aspirations; compile key insights.
2. Engagement with traditional craftspersons: Interact with traditional Indian artisans to learn about cultural knowledge, heritage practices, materials, and context-based design wisdom.
3. Participatory design and idea co-creation: Facilitate a co-design session with peers or mock community members to collaboratively generate and refine possible solution directions.
4. Concept framing and visual representation: Develop concept directions through sketches, storyboards, user journey maps, or design briefs to communicate proposed solutions.
5. Assessment of inclusivity and social relevance: Evaluate concept ideas for accessibility, inclusivity, feasibility, cultural sensitivity, and relevance to difference marginalized groups.
6. Feedback collection, refinement, and final presentation: Gather feedback through discussions or walkthroughs, refine the proposed solutions, and present the final concept with justification based on user insights and social impact.

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

SEMESTER II

DISCIPLINE SPECIFIC CORE COURSE
ENTREPRENEURSHIP & ENTERPRISE MANAGEMENT

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 (if any)
		Lecture	Tutorial	Practical		
Entrepreneurship & Enterprise Management	**4**	**2**	**0**	**2**	**As per admission norms**	**Nil**

Learning Objectives

- To build an innovative and entrepreneurial mindset among students
- To strengthen skills in opportunity identification, problem analysis, communication, and strategic planning for enterprise development
- To equip students with practical tools for designing, managing, marketing, and scaling new ventures
- To help students understand and apply concepts of business modelling, financial planning and resource management
- To enable students to assess legal, ethical, and sustainability considerations while developing entrepreneurial interventions at local and national levels

Learning Outcomes

After completing the course, students should be able to:

- Understand the fundamental of entrepreneurship, opportunity recognition, and innovation in entrepreneurship
- Apply the principles of entrepreneurship to design and evaluate new and innovative ventures.
- Analyse market insights, funding options, legal landscape and compliance needs that are essential to make informed business decisions
- Develop skills needed to manage, grow and sustain an enterprise

THEORY

(Credits 2; Hours 30)

UNIT I: Innovation and Entrepreneurship 7 Hours

This unit covers core ideas of innovation and entrepreneurship. It helps students understand how opportunities emerge, how creative thinking supports problem solving and how new ventures begin to take shape in different sectors.

- Nature and scope of entrepreneurship
- Innovation as a driver of opportunity, Types of innovation (product, process, business model, social)
- Entrepreneurial mindset, creative problem-solving, opportunity recognition and evaluating market potential
- Basics of new venture creation

UNIT II: Emerging Trends, Technology, and Enterprise Development 7 Hours

This unit explores the technological and market shifts that influence today's enterprises. It highlights how design practices and sustainability trends open new ventures.

- Technology disruptions shaping modern markets
- Innovation ecosystems: incubators, accelerators, and industry clusters
- Sustainability-driven and design-driven entrepreneurship
- Product development pathways and role of design thinking

UNIT III: Business Modelling, Planning, and New Venture Creation 7 Hours

This unit focuses on the practical process of shaping a new venture. It gives students the foundation to plan and launch viable enterprises by highlighting on customer research, value proposition, and business model development.

- Identifying a problem or market opportunity
- Process of launching a new venture- market research, analysis and segmentation
- Value proposition design, feasibility analysis, forming a team, leadership skills
- Preparing a structured business plan, risk assessments, pitfalls, and strategies for execution and growth

UNIT IV: Financial and legal aspects in Enterprise management 9 Hours

This unit outlines how new ventures secure and manage financial resources. It explains funding sources and valuation process. The unit highlights legal and ethical issues in enterprise management.

- Government schemes, grants, and entrepreneurial financial support systems
- Basics of valuation for early start-ups
- Tax considerations for new ventures, major hidden tax traps in business
- Intellectual Property Rights: patents, copyrights, trademarks, design rights, trade secrets
- Common legal and ethical pitfalls when starting a business

PRACTICAL

(Credits 2; Hours 30)

1. **Self-Assessment of Entrepreneurial Competencies:** Assessment and profiling of entrepreneurial competencies using validated assessment tools such as the Personal Entrepreneurial Competencies (PEC) framework, Locus of Control scale, and Creativity/Innovation. Write a short reflective report to summarise key findings.

2. **Opportunity Mapping and Venture Ideation:** Identify a need or challenge within a community, institution, or market segment through field observation, interviews, or secondary research. Analyse user behaviour, pain points, and existing solutions. Based on the findings, propose 2–3 opportunity areas and justify entrepreneurial potential. Present insights using simple tools such as empathy maps, need statements, or opportunity grids.
3. **Design-thinking and product/solution sketch:** Select one opportunity from the studio and conduct a mini design-thinking cycle: empathise with users via brief interviews, define a clear problem statement, and ideate multiple solution options. Develop a low-fidelity prototype (storyboard, paper interface, or service blueprint) and document how sustainability, inclusivity, and usability were considered; highlight which competencies—such as creativity, persistence, and communication—shaped the final concept. Present outputs as empathy maps, “how-might-we” statements, and annotated

sketches of the proposed product or service.

4. **Business Model and Financial Planning Exercise:** Prepare a viable business proposal. Define the value proposition, customer segments, channels, revenue streams, and key resources. Estimate basic cost components, prepare a simple budget, and calculate preliminary financial projections such as break-even point and cash-flow requirements. Suggest suitable funding sources for the venture based on scale, stage, and feasibility.

5. **Venture pitch and ecosystem exposure**: Interact with founders or managers to learn about challenges, ecosystem support, and growth strategies. Based on the entire practical work, prepare a structured pitch deck and present the venture idea, prototype, market justification, business model, and financial plan.

6. **Financial, legal and ethical readiness brief for start-ups**: Develop a 2–3 page brief for your proposed venture that outlines expected cost heads, tentative revenue streams, and feasible funding avenues such as government schemes, grants, or early-stage investors. Identify at least two legal and ethical risk areas (e.g., IP protection, tax compliance, advertising claims, data privacy) and propose preventive measures that reflect responsible entrepreneurial behaviour and commitment to long-term sustainability. Present the brief as structured sections or a checklist-based template suitable for early-stage founders.

Essential Readings

UNIT I

- Chhabra, T. N. (2024). *Entrepreneurship development. Sun* India Publication.
- **Desai, V. (2022).** *Dynamics of entrepreneurial development and management* (6th ed.). Himalaya Publishing House.
- **Gupta, A., & Srinivasan, R. (2020).** *Entrepreneurship development* (1st ed.). Oxford University Press India.
- **Khanka, S. S. (2021).** *Entrepreneurial development* (2nd ed.). S. Chand Publishing.

- **Tiwari, R., & Bhat, S. (2023).** *Entrepreneurship in India* (2nd ed.). McGraw Hill Education (India).

UNIT II

- **Nair, A., & Pandey, S. (2023).** *Innovation and entrepreneurship*. Bloomsbury India.
- Vaish, V. (2025). *India business guide: Startup to set-up*. Commercial Law Publishers.

UNIT III

- Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2025*). Entrepreneurship (12th ed.).* McGraw-Hill Education.
- Meyer, M. H., & Crane, F. G. (2024). *New venture creation: An innovator's guide to entrepreneurship (2nd ed.).* SAGE College Publishing.
- Puri, G. (2022). *Entrepreneurship: New venture creation*. SSDN Publishers.

UNIT IV

- **Agarwal, R., & Goyal, M. (2023).** *Start-up law and compliance in India*. Taxmann Publications.
- **Bansal, C. L. (2022).** *Taxation of business entities*. Taxmann Publications
- **Ganguli, P. (2020).** *Intellectual property rights* (3rd ed.). Tata McGraw-Hill Education.
- **Kumar, R., & Sharma, S. (2021).** *Financial management for entrepreneurs*. Taxmann Publications.
- **Sidana, N. (2024).** *Ethics, governance and compliance*. Bloomsbury India.

Suggested Readings

- Bhidé, A. (2023). *The venturesome economy: How innovation sustains prosperity in a more connected world.* Princeton University Press.
- Campbell, C. C. (2025). *Start. Scale. Exit. Repeat: The playbook for aspiring serial entrepreneurs.* Wiley.
- Holt, D. H. (2024). *Entrepreneurship: New venture creation (Updated ed.).* Pearson.

- Kuratko, D. F. (2021). *Entrepreneurship: Theory, process, and practice (12th ed.).* Cengage Learning.
- Liedtka, J., & Ogilvie, T. (2023*). Design thinking: A comprehensive textbook*. Wiley India.
- Radjou, N., Prabhu, J., & Ahuja, S. (2024). *Jugaad innovation: Think frugal, be flexible, generate breakthrough growth.* Random House India.

Journals articles (Highly cited and relevant)

- Dell'Era, C., & Verganti, R. (2023). Design thinking for entrepreneurship: An explorative inquiry into its application in practice. *The Design Journal,* 26(6), 987–1005
- Lal, M., & Thakur, S. (2025). Entrepreneurial education in emerging economies: A bibliometric analysis. *The IUP Journal of Entrepreneurship Development*, 22(3), 59–81.
- Murad, M., et al. (2024). The role of opportunity recognition, entrepreneurial social capital and education in shaping entrepreneurial intention. *International Journal of Management Education,* 22(3), 100872.
- Ratten, V. (2023). Entrepreneurship: Definitions, opportunities, challenges, and future research directions. *Journal of Organisational Effectiveness: People and Performance*, 10(3), 245–262.
- Roy, B., & Shakya, A. (2025). Make in India: Manufacturing policy and sectoral performance. *The IUP Journal of Entrepreneurship Development*, 22(2), 28–45.

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

DISCIPLINE SPECIFIC CORE COURSE
FINANCIAL PLANNING AND ACCOUNTING PRACTICES

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 (if any)
		Lecture	Tutorial	Practical		
Financial Planning and Accounting Practices	4	3	0	1	As per admission norms	NIL

Learning Objectives

To provide basic knowledge regarding multiple accounting and financial aspects to students.

Learning Outcomes

1. Knowledge about principles and techniques of accounting information for decision-making and control
2. Acquire skills in the use of tools, techniques and processes of financial management in the realm of financial decision-making.

THEORY
(Credits 3; Hours 45)

UNIT I: Introduction to financial accounting and financial management 10 Hours

- Concept, nature, and scope of financial accounting
- Financial accounting – generally accepted accounting principles (GAAP)
- Accounting process and system- journal, ledger& trial balance
- Cost accounting and Management accounting
- Objectives, nature and scope of financial management

UNIT II: Financial Statements & tools of financial analysis 10 Hours

- Preparations of Profit and Loss accounts and Balance sheets
- Long-term Assets and Depreciation / Inventory
- Tools of financial analysis: Fund flow analysis and Cash flow analysis, Ratio analysis, Cost volume profit (break-even) analysis, Analysis of operating and financial leverages

UNIT III: Cost Accounting **15 Hours**

- Costing fundamentals: Cost concepts & classifications, Materials, Direct Labour and Direct Expenses, Overheads general, Overheads Distributions
- Costing for Specific Industries: Single or Output costing, Job, Batch and Contract costing, Process Costing, Operating costing
- Costing for Control: Budgetary control, Standard costing & Variance analysis, Marginal costing & Cost volume profit analysis

Unit IV: Management Accounting and Financial Planning **10 Hours**

- Raising long-term funds: Planning capital structure, Internal financing, Gaining access to Angel funding, Venture capital funding and Business loans.
- Managing short-term finance: Management of Working capital, Management of Inventories

Essential Readings:

UNIT I:

- Tulsian. P. C. (2023). *Financial Accounting.* Pearson Education Narayanswami.
- Maheshwari S.N. & Maheshwari S. K. (2020). *An Introduction to Accountancy*. Vikas, 9th Edition.

UNIT II:

- Bhattacharya, A. K. (2020). *Essentials of Financial Accounting*. PHI, New Delhi.
- Brealey, A. R., Myers, C. S., Allen, F., Edmans, A., Mohanty, P. (2023), Principles of Corporate Finance, McGraw-Hill.
- Chandra, P. (2023). *Financial Management: Theory and Practice*. New Delhi: Tata McGraw Hill Publishing
- Ghosh. T. P. (2025). Indian *Accounting Standards & Corporate Standard Practices*. Taxman, 10th Edition.

UNIT III:

- Anthony, A. (2016). *Management Accounting*. London: Prentice Hall
- Mukherjee (2020). *Financial Accounting for Management.* TMH, 1st Edition.
- Ramchandran & Kakani. (2017). *Financial Accounting for Management.* TMH, 2nd Edition.
- SN Maheshwari & SN Mittal (2020), *Cost Accounting Principles &Practice*, A Mahavir Publication.

UNIT IV:

- Horngren, Charles T. (2014). *Introduction to Management Accounting*. New Delhi: Prentice Hall of India Private Ltd
- Kimmel. P.D. (2021). *Financial Accounting: Tools for Business Decision Making*. New York: John Wiley & Sons

Suggested Readings:

- Anthony, A. (2001). *Management Accounting*. London: Prentice Hall
- Bhattacharya, A. K. (2007). *Essentials of Financial Accounting*. PHI, New Delhi.
- Chandra, P. (2001). *Financial Management: Theory and Practice*. New Delhi: Tata McGraw Hill Publishing
- Damodaran, A. *Corporate Finance: Theory and Finance*. New York: John Wiley
- Ghosh. T. P. (1998). *Accounting and Finance for Managers*. Taxman, 1st Edition.
- Horngren, Charles T. (2001). *Introduction to Management Accounting*. New Delhi: Prentice hall of India Private Ltd
- Kimmel. P.D, (2000). *Financial Accounting: Tools for Business Decisions Making*. New York: John Wiley & Sons
- Maheshwari S.N. & Maheshwari S. K. (2007). *An Introduction to Accountancy*. Vikas, 9th Edition.
- Mukherjee. (2009). *Financial Accounting for Management.* TMH, 1st Edition.
- Ramchandran & Kakani. (2007). *Financial Accounting for Management.* TMH, 2nd Edition.
- Tulsian. P. C. (2008). *Financial Accounting.* Pearson Education Narayanswami.
- www.everant.org Account and Financial Management Journal(2020),Volume 5.

PRACTICAL

(Credit 1; Hours30)

1. Journal Entries and the Accounting Cycle

Record a series of business transactions in a general journal using the double-entry bookkeeping method.

2. Financial Statement Preparation

Prepare a complete set of financial statements (Income Statement, Balance Sheet, and Cash Flow Statement) using provided internal data for a fictional company.

3. Cost-Volume-Profit Analysis

Conduct a cost-volume-profit (CVP) analysis for a company offering a specific product or service, including breakeven analysis.

4. Depreciation Accounting

Hands-on activities for calculating depreciation using various methods.

5. Inventory Valuation

Calculate inventory balances using different methods such as FIFO (First In, First Out), LIFO (Last In, First Out), and Weighted Average.

6. Analysis and Interpretation of Financial Statement

Analyse the financial statements of a publicly traded company over the last three years.

7. Ratio Analysis

Analyse company performance by calculating key financial ratios (liquidity, profitability, efficiency, and solvency ratios) from the provided financial statements.

8. Fund Flow Analysis

Examination of real-world scenarios to illustrate fund flow analysis in practice.

9. Requirements of Working Capital

Analysing the working capital management practices of selected companies to identify best practices.

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

DISCIPLINE SPECIFIC ELECTIVE COURSE
ENERGY POLICY, SYSTEMS AND SUSTAINABILITY

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 (if any)
		Lecture	Tutorial	Practical		
Energy Policy, Systems and Sustainability	**4**	**2**	**0**	**2**	**As per admission norms**	**Nil**

Learning Objectives

- To understand the global and Indian scenario of energy demand and supply
- To learn about the impact of energy consumption on the environment and climate change
- To understand the different types of energies, their availability and potential with emphasis on the renewable sources of energy
- To learn about the policies and legislative frameworks in India and globally, pertaining to the energy sector including key stakeholders
- To learn about energy conservation, benefits and challenges faced, energy audits and energy management

Learning Outcomes

After completing the course, students will be able to:

- Understand the global and Indian scenario of energy demand and supply
- Understand the impact of energy consumption on the environment and climate change
- Appreciate the different sources of energy and their availability
- Understand the global and Indian policy structure for the energy sector
- Understand energy conservation, audit and management

THEORY

(Credits 2; Hours 30)

UNIT I: Energy Sources: Global and Indian Energy Scenario 7 Hours

This unit throws light on the energy scenario in India and globally, impact of energy on economic development and the need for renewable energy sources.

- Energy resources and consumption in residential, commercial and institutional sector; relationship between energy and environment
- Role of energy in economic development and social transformation
- Energy sources, overall energy demand and availability
- Depletion of energy sources and its impact, need for renewable sources of energy
- Energy use and global climate change, GHG emissions, climate change debate

UNIT II: Energy Systems and Technologies 8 Hours

This unit focuses on present status and future prospects of various energy sources. It also focuses on the different conventional and renewable sources of energy.

- Conventional energy sources: sources, issues and challenges, applications, current status, advantages and disadvantages, technologies, future prospects
- Non-conventional energy sources: need, sources, current status, significance, technologies, applications, challenges and opportunities

UNIT III: Energy policy, legislative framework and energy strategy 7 Hours

This unit throws light on the Indian and global energy policy scenario.

- History of energy policy, International Energy Policies, international treaties and protocols
- Legislations guiding energy sector in India
- Energy Policy Issues
- Power sector reforms, restructuring of energy supply sector, energy strategy for future

UNIT IV: Energy Conservation and Auditing **8 Hours**

This unit throws light on energy conservation, energy audit and management.

- Energy conservation measures across different consumer segments, benefits of energy conservation on economy and environment
- Challenges faced in energy conservation
- Techniques and strategies for reducing and managing energy use across industrial, commercial, agricultural, and domestic sectors
- Energy audits, technologies used in auditing, structure and components of energy audit reports

PRACTICAL

(Credit 2; Hours: 60)

- Conducting energy audits, optimizing energy usage in commercial, institutional and residential units through energy efficiency and use of renewable energy
- Government initiatives in renewable energy, legislative framework in the energy sector - Analysis through policy implementation, feedback from stakeholders etc.
- Calculation of solar rooftop potential using various applications/websites
- Energy conservation and efficiency - Analysis of the current scenario through primary and secondary review etc.
- Designing/developing and conducting training/awareness generation programme on energy management/renewable energy for different target groups
- Renewable energy project management through softwares

Essential Readings:

UNIT I:

- Yang, P. (2024). *Renewable Energy: Challenges and Solutions.* Springer.
- Paritosh, & Jain, A. (2023). *Energy Scenario in India*. Book World.

UNIT II:

- Deo, P., Chatterjee, S. K., & Modak, S. (2024). *Renewable Energy in India: Economics and Market Dynamics.* Atlantic Publishers & Distributors.

- Raj, D., Verma, A. K., Singh, A., & Kulkarni, A. (2024). *A Text Book Of Renewable Energy & Green Technology.* Book Rivers.
- Bollin, E. (2023). *Using Renewable Energies in Buildings: Heating and Cooling Supply, Automation, Executed Examples.* Springer.

UNIT III:

- Mital, M., & Gupta, P. (Eds.). (2025). *Environmental Studies: Resources and Sustainability - A Textbook and Practical Manual.* Elite Publishing.
- Sharma, A. (2024). *India's Quest for Energy Security: India's Roadmap to becoming an Energy Independent Nation.* Notion Press.
- Thapar, S. (2024). *Renewable Energy: Policies, Project Management and Economics.* Springer.

UNIT IV:

- Saxena, B. (2024). *Essentials Of Energy Management and Audit*. BFC Publications Pvt Ltd
- Sethuraman, A. (2020). *Practical Guide to Energy Conservation & Management.* Notion Press.

Suggested Readings:

- Kanoglu, M., Cengel, Y. A., & Cimbala, J. M. (2020). *Fundamentals and Applications of Renewable Energy.* McGraw Hill.
- International Energy Agency (2017). *Energy Technology Perspectives 2017.* Paris, International Energy Agency.
- Kothari, P., Singal, K. C., & Ranjan, R. (2008). *Renewable Energy Sources and Emerging Technologies.* PHI Pvt. Ltd.: New Delhi.
- Kishore, V. V. N. (2008). *Renewable energy engineering and technology – A knowledge compendium.* TERI Press: New Delhi.
- Kreith, F., & Yogi Goswami D. (2007). *Handbook of Energy Efficiency and Renewable Energy*. CRC Press.

Journal Articles (highly cited and relevant)

- Bhattacharyya, S. C. (2018). India's energy policies: Past, present, and future. *Energy Policy*, *117*, 303–318.
- Kumar, A., Gaur, S., & Kr, M. (2010). Renewable energy in India: Current status and future potentials. *Renewable and Sustainable Energy Reviews*, *14*(8), 2434–2442.
- Bhandari, D., Bansal, S., & Baveja, S. (2018). The perform, achieve and trade scheme in India: An effectiveness analysis. *Renewable and Sustainable Energy Reviews*, *96*, 387–396.
- Thapar, S., & Verma, A. (2016). Economic and environmental effectiveness of renewable energy policy instruments: Best practices from India. *Renewable and Sustainable Energy Reviews*, *66*, 487–498.
- Purohit, I., & Purohit, P. (2019). Wind energy development and policy in India: A review. *Energy Policy*, *125*, 302–321.
- Painuly, J. P. (2006). A review of energy conservation initiatives by the Government of India. *Energy Policy*, *34*(18), 3769–3782.

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

DISCIPLINE SPECIFIC ELECTIVE
ERGONOMICS AND OCCUPATIONAL SAFETY MANAGEMENT

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 (if any)
		Lecture	Tutorial	Practical		
Ergonomics and Occupational Safety Management	4	3	0	1	As per admission norms	Nil

Learning Objectives

- Understand the principles of human-machine systems and their role in optimizing worker performance and safety.
- Analyze the impact of work posture and stress on health, productivity, and ergonomics.
- Learn techniques for ergonomic task analysis, risk assessment, and hazard management in the workplace.
- Explore modern trends in occupational safety, ergonomic design, and strategies to reduce health risks.
- Understand the integration of health regulations and ergonomic practices to enhance worker well-being and safety.

Learning Outcomes

- Demonstrate understanding of human-machine systems and how to align tasks with human capabilities to reduce strain.
- Analyze the impact of occupational stress, work posture, and ergonomic risk factors on health and productivity.
- Apply ergonomic task analysis and risk assessment techniques to identify and manage workplace hazards.

- Explore modern trends in ergonomics, focusing on stress reduction, posture improvement, and long-term health benefits.
- Understand occupational safety and health regulations and how ergonomic design enhances worker protection and compliance with standards.

THEORY

(Credits 3; Hours 45)

UNIT I: Occupational Stressors in the Workplace 15 Hours

This unit focuses on identifying workplace stressors at home, office and industrial setups, understanding MSDs and their causes, and examining safety practices guided by OSHA and NIOSH.

- Occupational stress -Physical Discomfort and Strain, Environmental Stressors, Mental and Emotional Stress, Organizational Factors
- Musculoskeletal Disorders (MSDs) in the Workplace: Definition, Types, and Causes
- Preventing Musculoskeletal Disorders (MSDs) in the Workplace-
  -Health monitoring protective equipment
  -safe work practices
  -safety of equipment
- Occupational safety analysis-OSHA, NIOSH

UNIT II: Ergonomic Factors and Workstation Design 10 Hours

This unit provides an overview of ergonomic design elements, risks associated with poorly designed workstations, and approaches to creating safer, more efficient work environments.

- Ergonomic factors in the design of workplace, equipment and tools, Influence of ergonomic design on worker health and productivity, Hazards associated with poor designed workstations
- Strategies for improving workstation and equipment design for optimal comfort and safety

UNIT III: Kinesiological and Biomechanical Concepts in Work Posture

12 Hours

This unit covers the fundamentals of kinesiology and biomechanics, the importance

of proper work posture, and the types of postures for various occupational tasks.

- Kinesiology and biomechanics, human leverage system and its mechanical benefits
- Importance of proper work posture
- Types of work postures for various tasks
- Application of biomechanics in occupational safety- to prevent accidents and reduce physical stress on workers.

UNIT IV: Risk Assessment in Occupational Ergonomics 8 Hours

This unit deals with applying subjective and objective ergonomic assessments to improve worker posture, safety, and efficiency.

Subjective and objective assessment- Postural analysis tools (REBA (Rapid Entire Body Assessment), RULA (Rapid Upper Limb Assessment), and OWAS (Ovako Working Posture Analysis System), WERA (Workplace Ergonomics Risk Assessment)

Essential Readings

UNIT I:

This unit focuses on identifying workplace stressors at home, office and industrial setups, understanding MSDs and their causes, and examining safety practices guided by OSHA and NIOSH.

- Sarma, A. M. (2025). *Occupational health and safety at work*. Himalaya Publishing House.
- Satapathy, S., Realyvásquez Vargas, A., & Mishra, M. (2023). *Occupational Health Safety Factors and Their Impact on the Mental Health of Workers*. Springer Singapore.
- Bridger, R. (2017). *Introduction to Human Factors and Ergonomics*. CRC Press.

UNIT II:

This unit provides an overview of ergonomic design elements, risks associated with poorly designed workstations, and approaches to creating safer, more efficient work environments.

- Salvendy, G. (2012). *Handbook of Human Factors and Ergonomics*. John Wiley & Sons.

- Tosi, F. (2019). *Design for Ergonomics*. Springer Nature.
- Steidl, R.E. & Bratton, E.C. (1968). *Work in the Home*. John Wiley & Sons Inc.

UNIT III:

This unit covers the fundamentals of kinesiology and biomechanics, the importance of proper work posture, and the types of postures for various occupational tasks.

- Koley, S. (2024). *Textbook of biomechanics*. AITBS Publishers, India.
- G, P. Kumar, & De Souza, I. G. (2022). *Textbook of biomechanics & kinesiology: Detailed analysis of musculoskeletal structure and function*. Jaypee Brothers Medical Publishers.
- Chakrabarti, D. (1997). *Indian Anthropometric Dimensions for Ergonomic Design Practice*. National Institute of Design.

UNIT IV:

This unit deals with applying subjective and objective ergonomic assessments to improve worker posture, safety, and efficiency.

- Mukhopadhyay, P. (2022). *Ergonomics principles in design: An illustrated fundamental approach*. CRC Press/Taylor & Francis Group.
- Ray, P. K., & Maiti, J. (Eds.). (2018). *Ergonomic design of products and worksystems: 21st century perspectives of Asia*. Springer.

Suggested Readings:

- Hedge, A. (2016). *Ergonomic Workplace Design for Health, Wellness, and Productivity*. CRC Press.
- Stanton, N. A., Hedge, A., Brookhuis, K., Salas, E., & Hendrick, H. W. (2004). *Handbook of Human Factors and Ergonomics Methods*. CRC Press.
- Helander, M. (2005). *A Guide to Human Factors and Ergonomics* (2nd ed.). CRC Press.

  Shorrock, S., & Williams, C. (2016). *Human Factors and Ergonomics in Practice: Improving System Performance and Human Well-Being in the Real World*. CRC Press.

PRACTICAL

(Credits 1; Hours 30)

1. Task analysis for the selected occupation

- Identify and describe the specific tasks involved in the selected occupation

-Task Categorization -physical demands (e.g., sitting, standing, lifting), mental effort (e.g., decision-making, problem-solving), and repetitive actions (e.g., typing, data entry).

-Task Duration and Frequency

-Tools and Equipment required to perform the task

2. Postural and Risk Assessment

-Observe and document the postures that user adopt while performing each task

-Use postural evaluation tools such as (REBA (Rapid Entire Body Assessment), RULA (Rapid Upper Limb Assessment), and OWAS (Ovako Working Posture Analysis System),WERA (Workplace Ergonomics Risk Assessment) to objectively assess the risk of musculoskeletal disorders (MSDs) related to posture.

3.Designing workstation/equipment based on ergonomic assessment and Occupational safety analysis of the selected workplaces

4. Design OSHA/NIOSH safety and health checklist

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

DISCIPLINE SPECIFIC ELECTIVE COURSE

POLICIES AND TECHNOLOGIES FOR WASTE MANAGEMENT

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 (if any)
		Lecture	Tutorial	Practical		
Climate Change, Ecosystem & Society: Issues & Concerns	4	3	0	1	As per admission norms	Nil

Learning Objectives

- To understand the problems different types of wastes
- To gain insights into various aspects of waste management
- To understand the policy structure for waste management in the country
- To learn about the environment and health impacts of waste mismanagement

Learning Outcomes

After completing the course, students will be able to:

- Understand the problems associated with wastes
- Understand the various aspects of waste management
- Understand the policy framework for waste management in India
- Understand the environment and health impacts of waste mismanagement

THEORY
(Credits 2; Hours 30)

UNIT I: Waste management: Global and Indian Scenario 7 Hours

This unit throws light on the waste generation scenario in India and globally, and its impact on environment and health.

- Definition, Types and Categories of Waste

- Sources and types of waste in different countries, associated challenges
- Quantum of waste generated globally and in India
- Need and importance of waste management for homes, institutions, industries and commercial establishments

UNIT II: Policy and Legislative Framework Waste Management 8 Hours

This unit throws light on the Indian and global waste policy scenario.

- International policy scenario for waste management
- Waste management rules in India for MSW, Biomedical waste, e-waste and other hazardous wastes in India
- Extended producer responsibility (EPR)
- Circular Economy and its benefits, Case studies

UNIT III: Technologies for Waste Management 8 Hours

This unit focuses on various technologies for waste management.

- Classification, present scenario of disposal technologies used for waste management
- Waste prevention and 7Rs principles
- Sources, composition, properties, management technologies for different types of wastes – Municipal Solid Waste (MSW), waste water, biomedical waste, hazardous waste, e-waste, industrial waste, agricultural waste, C&D waste, plastic waste, nuclear waste etc.
- Bio-waste – Definition, physicochemical characteristics, sourcing, issue of waste segregation and packaging, food waste, composting technologies, anaerobic digestion (biogas), bio-fuels
- Energy recovery from wastes – RDF, waste to energy plants etc.
- Innovations in waste management

UNIT IV: Environmental and Health Impacts of Waste Mismanagement 7 Hours

This unit explains how improper waste disposal affects ecosystems and human

wellbeing.

- Air, water, and soil pollution from open dumping and burning
- Health risks to waste workers, ragpickers, and nearby communities
- Spread of infectious diseases from biomedical and mismanaged waste
- Long-term ecological impacts: contamination of groundwater, biodiversity loss, and toxic exposure

PRACTICAL

(Credit 2; Hours: 60)

- Government initiatives on waste management – Analysis through policy implementation, feedback from stakeholders etc.
- Legislative framework in the waste management sector – Critical analysis with focus on different types of wastes, current market scenario etc.
- Initiatives towards Extended Producer Responsibility (EPR) – Analysis of the current scenario through primary and secondary review etc.
- Designing/developing and conducting training/awareness generation programmes on waste management for different target groups
- Management technologies and innovations for managing different types of wastes in commercial, institutional and residential units – Analysis, review and generation of innovative ideas etc.

Essential Readings:

UNIT I:

- Bhatia, S. (2023). *Solid and Hazardous Waste Management*. Atlantic Publishers and Distributors.
- Natesan, U., & Sumathi, V. R. (2021). *Solid Waste Management in an Indian Scenario*. Grin Verlag.

UNIT II:

- Mital, M., & Gupta, P. (Eds.). (2025). *Environmental Studies: Resources and Sustainability - A Textbook and Practical Manual.* Elite Publishing.

- Sinha, G. N. (2024). *E-Waste Management: Governance and Policy Options.* M/s Bishen Singh Mahendra Pal Singh.
- Ghosh, S. K., Samanta, S., Hirani, H., & Vieira da Silva, C. R. (2022). *Effective Waste Management and Circular Economy: Legislative Framework and Strategies (The Circular Economy in Sustainable Solid and Liquid Waste Management).* CRC Press.

UNIT III:

- Sarkar, R. R. (2023). *Waste to Energy Efficient Municipal Solid Waste Management.* Abhijeet Publications.
- Rathoure, A. K. (2021). *Sustainable Practices for Waste Management.* Discovery Publishing House Pvt. Ltd.
- Panda, H. (2019). *Biomedical Waste: Management, Recycling and Applications.* Discovery Publishing House Pvt. Ltd.

UNIT IV:

- Marfe, G, & Stefano, C. D. (2020). *Risks and Challenges of Hazardous Waste Management: Reviews and Case Studies.* Bentham Science Publishers.

Suggested Readings:

- Cherry, P. M. (2016). *Solid and Hazardous Waste Management*. CBS HB.
- Bhatt, M. S. (2012). *Solid Waste Management: An Indian Perspective.* Synergy Books India.
- Srivastava, M. L. (2012). *Waste Management.* Random Publications.
- Ramachandra, T. V. (2009). *Management of Municipal Solid Waste*. The Energy and Resources Institute.

Journal articles (High Citation Count & Broad Overview)

1. Wilson, K. V., Williams, L. M., Kemp, S. L., Smith, A. D. C., Murphy, S., & Smith, M. P. (2017). Challenges and opportunities associated with waste management in India. *Royal Society Open Science*, *4*(3), 160764.

2. Dwivedy, M., & Mittal, R. K. (2017). Assessment of legislation and practices for the sustainable management of waste electrical and electronic equipment in India. *Renewable and Sustainable Energy Reviews*, *76*, 1245–1254.
3. Prabhakar, A. K., Dong, J. J., & Mees, A. (2022). Plastic waste management in India: Challenges and opportunities. *Sustainability*, *14*(18), 1167.
4. Kamble, S. S., Gunasekaran, A., Gawankar, S. A., & Manupati, V. K. (2023). Smart waste management 4.0: The transition from a systematic literature review on the role of industry 4.0 technologies to a framework for smart waste management. *Waste Management*, *165*, 247–263.

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

DISCIPLINE SPECIFIC ELECTIVE COURSE
PROFESSIONAL DESIGN METHODS & START-UPS

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 (if any)
		Lecture	Tutorial	Practical		
Professional Design Methods & Start-Ups	**4**	**3**	**0**	**1**	**As per admission norms**	**Nil**

Learning Objectives

- To introduce students to professional ethics, design practices, and the importance of Intellectual Property Rights (IPR) in design
- To equip students with the knowledge and skills required to conceptualize, initiate, and manage a startup
- To provide an understanding of financial planning, marketing strategies, and branding for design startups
- To develop students' ability to create a professional design portfolio, prepare a business model, and engage in startup simulations
- To prepare students for real-world design challenges through industry observation and practical exercises.

Learning Outcomes

After completing this course, students will be able to:

- Understand the significance of startups and how to identify business opportunities
- Understand professional ethics, design standards, and IPR in design
- Develop skills to conceptualize, analyze, and initiate a startup

- Build a professional design portfolio and pitch startup ideas
- Apply industry insights through observation and hands-on simulation exercises.

THEORY

(Credits 3; Hours 45)

UNIT I: Foundations of Professional Design Practices and Intellectual Property Rights **12 Hours**

This unit focuses on professional design practices, real-world project experience, industry collaboration, and safeguarding creative work through Intellectual Property Rights.

- Collaborating with design-related industries (interior, event, landscape, facilities, product development, furniture, upcycling/recycling), focusing on manpower, guidance, product strategies, and design approaches.
- Engaging with real-life projects
- Developing a future-oriented project with commercial potential for a specific industry.
- Building a professional network with relevant industries.
- Understanding the significance and procedures of Intellectual Property Rights (IPR), including patents, copyright, industrial designs, trademarks, service marks, layout designs of integrated circuits, and geographical indications.
- Applying for appropriate IPR to safeguard designs from plagiarism

UNIT II: Initiating a Design Startup **10 Hours**

This unit delves into exploring viable design startup ideas, assessing feasibility, and building a comprehensive professional portfolio.

- Exploring a startup idea or business opportunity through market analysis and understanding consumer needs, including:
  - Developing viable concepts through ideation, conceptualization, and innovation

  - Assessing feasibility in terms of technology, market potential, financial viability, and human resources
- Developing a personal and professional portfolio that reflects technical skills, as well as social, economic, and environmental considerations.

UNIT III: Marketing, and Branding for Design Startups 15 Hours

This unit highlights marketing, branding, organizational structure, startup registration, problem-solving, and government support for design startups.

- Marketing and branding: market segmentation, USP, brand building
- Identifying structure for the startup organization: sole proprietorship, partnership, limited company, co-operative, franchise or social enterprises
- Identifying challenges and solving problems for a successful startup
- Registration process: selecting a company name, acquiring digital signature certificate (DSC) and Director Identification Number (DIN), filling relevant forms with supporting documents, registration of the startup
- Government programmes and policies supporting startups

UNIT IV: Financial Planning for Design Startups 8 Hours

This unit covers financial planning, cost estimation, funding sources, legal compliance, and business plan development for design startups.

- Preparing cost estimates for technical, manpower and other resources; recurring and non-recurring; rate of return and break-even analysis; overheads / operational costs
- Financial analysis, support systems and funding: sources of funding, costing and budgeting, formal and informal sources of support, networking
- Legal & ethical compliance: regulations, taxation, business ethics
- Writing a business plan

Essential Readings

UNIT I:

This unit focuses on professional design practices, real-world project experience, industry collaboration, and safeguarding creative work through Intellectual Property Rights.

- Ramkumar, M., & Jayakumar, A. (Eds.) (2022). *Intellectual property rights demystified*. New India Publishing Agency.
- Babel, R. (2021). *Laws relating to intellectual property rights in India*. Bloomsbury Professional India.

UNIT II:

This unit delves into exploring viable design startup ideas, assessing feasibility, and building a comprehensive professional portfolio.

- Taneja, H., & Lahiri, S. (2021). *Design thinking for startups: An actionable guide for building innovative businesses*. Wiley.
- Brown, T., & Katz, B. (2020). *Change by design: How design thinking creates new alternatives for business and society* (Revised ed.). Harper Business.
- Soota, A., & Gopalan, S. R. (2021). *Entrepreneurship simplified: From idea to IPO*. Penguin Portfolio.

UNIT III:

This unit highlights marketing, branding, organizational structure, startup registration, problem-solving, and government support for design startups.

- Anantham, M. (2025). *Company Registration: Starting Up in India — A Step-by-Step Guide*. Self-Published/India Business Press.
- Binns, S. (2021). *Building the future: Big team, big ideas, small startups, and how to make them work*. Wiley
- Blank, S., & Dorf, B. (2020). *The startup owner's manual: The step-by-step guide for building a great company* . K&S Ranch.

UNIT IV:

This unit covers financial planning, cost estimation, funding sources, legal compliance, and business plan development for design startups.

- Kawase, M. (2022). *Financial planning for startups: A hands-on guide to launching and managing your business finances*. Routledge.
- Gandhi, S. (2021). *Indian Startups, SMEs, & Financial Literacy: Business finance basics entrepreneurs must know*. Notion Press Media Pvt Ltd

Suggested Readings:

- O'Reilly, C. A., & Tushman, M. L. (2021). *Lead and disrupt: How to solve the innovator's dilemma*. Stanford Business Books.
- Wheeler, A. (2022). *Designing brand identity: An essential guide for the whole branding team* (6th ed.). Wiley.
- Klein, D. (2021). *AI and automation for business growth: Leveraging technology to scale your startup*. Springer.

PRACTICAL

(Credits 1; Hours 30)

1. Interacting with design-related industries (interior products, event design and decor, landscape design, facilities and services management, new product development, furniture design, upcycling, refurbishing, recycling, etc.)
2. Engaging with real-life projects
3. Developing a future project with commercial potential
4. Building a network of collaboration with relevant industries
5. Developing a personal and professional portfolio
6. Enhancing professional skills for presenting design projects
7. Reviewing success stories of startups and enterprises.
8. Preparing a comprehensive business plan for a startup, including financial analysis, legal and ethical compliance, marketing, and branding
9. Registering the startup
10. Executing the startup project

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

DISCIPLINE SPECIFIC ELECTIVE COURSE

INTEGRATING SUSTAINABLE DEVELOPMENT IN PRACTICE

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 (if any)
		Lecture	Tutorial	Practical		
Integrating Sustainable Development in Practice	**4**	**2**	**0**	**2**	**As per admission norms**	**Nil**

Learning Objectives

- To develop an understanding of the integrated and systems-based approach to sustainable development
- To impart skills in applying sustainability frameworks to real-world challenges
- To empower students to design, implement, and evaluate practical sustainability interventions
- To enhance competencies in multi-stakeholder engagement, communication, and evidence-based decision making

Learning Outcomes

After completing the course, students should be able to:

- Understand the connections between social, economic, and environmental issues, and how integrated approaches can address them
- Evaluate the role of various local, national, and international frameworks that drive sustainability transitions
- Apply integrated development approaches to analyse, design, and evaluate sustainability solutions.
- Work effectively with communities, networks, and stakeholders to drive sustainable change.

THEORY
(Credits 2; Hours 30)

UNIT I: Foundations of Sustainable Development in Practice 7 Hours

This unit covers an understanding of integrated sustainable development by linking systems thinking, interdependencies, and cross-sectoral approaches.

- Revisiting Sustainability- from theory to practice
- Interlinkages and inter-dependence between social, economic and environmental issues- Concept of integrated approach to sustainable development
- Case examples of sustainability practice in India and globally

UNIT II: Tools and Methods for Analysing Sustainability Issues 8 Hours

This unit explores practical tools used across sustainable development projects that translate theory into field-level action.

- Problem Tree, Objective Tree, and Causal Analysis
- Stakeholder analysis and mapping
- Synergies and trade-offs assessment
- Baseline studies and rapid rural/urban appraisal
- Prioritising issues and identifying entry points for action

UNIT III: Challenges and Opportunities for Sustainability Solutions 8 Hours

This unit focuses on turning analysis into action. It introduces solution design for real-world challenges and teaches students to plan interventions.

- Drivers and barriers in adopting an integrated approach to sustainable development, such as policy silos, resource constraints, competing priorities, and measuring outcomes
- Opportunities for integration, such as emerging technologies, innovation, public-private partnerships, traditional knowledges, good practices around the globe, etc.
- Approaches: low-carbon development, circular economy, green livelihoods, climate adaptation
- Communicating sustainability to influence behaviour and policy

UNIT IV: Institutionalizing and Monitoring Sustainability 7 Hours

This unit outlines how sustainability practices are embedded within organisations and systems. It highlights processes for integrating sustainability into planning, governance, and decision-making, and introduces methods for tracking and reporting sustainability performance.

- Mainstreaming sustainable development issues into planning processes
- Strategic framework and process for integrated sustainable development-institution building, analysis, creating dialogue, planning, communicating, financing, implementing and monitoring
- Monitoring and evaluation for tracking progress in sustainability projects: characteristics of effective monitoring, challenges.
- National and global reporting systems (NIF, SDG Index, Voluntary National Reviews)

PRACTICAL
(Credits 2; Hours 30)

1. **Community-Based Sustainability Diagnosis:** Study one sustainability issue in a community/campus, map SDG links, and identify gaps to be addressed. Record baseline data for indicators like Waste: bags/day, overflow count/day, segregation accuracy %;

   Water: leak points count, tanker frequency, tap wastage observations;

   Mobility: vehicles/hour, parking occupancy %, average commute time;

   Livelihood: days of work/week, income variability score, access barrier count

2. **Designing a Sustainability Intervention**: Develop an intervention plan for a sustainability challenge. Include solution options, behavioural strategies, resource needs, risk analysis, and expected outcomes. Use ToC or Results Framework for design clarity. It may focus on waste reduction, water conservation, energy efficiency, campus sustainability, or a community-based initiative.

3. **Implementation of sustainability intervention-** Implement a small-scale sustainability intervention designed in the earlier practical sessions. Carry out planning, mobilisation, and execution steps; document processes; collect simple before–and–after observations or feedback; and reflect on challenges, outcomes,

and learning. A short implementation report and presentation will summarise the experience.

4. **Communication for Sustainable Development:** Create a communication product (poster, video, social media content, campaign kit) for a sustainability issue. Identify audience, key messaging, and behaviour-change components. Review campaign effectiveness using simple indicators.

5. **Stakeholder Engagement:** Conduct stakeholder profiling for a sustainability project. Prepare an interest–influence matrix and propose engagement strategies. Analyse potential conflicts, partnerships, and opportunities.

Essential Readings:

UNIT I

- Ghosh, J. (2022). *The making of a sustainable economy: Policies for India's future*. Penguin Random House India.
- Prakasam, N. (2023). *Back to Bharat: In search of a sustainable future*. Penguin Random House India Private Limited.
- United Nations Development Programme (2024). UNDP Sustainable Development Report: Practical pathways for accelerating the SDGs. UNDP Publishing.
- Whitby, A. (2019). *Advancing education for sustainable development: key success factors for policy and practice*. World Future Council Foundation.

UNIT II

- Dhamija, A., Misra, N., & Gogoi, I. S. (2019). *Project logical framework workbook for strategic planning of urban projects (Project logical framework workbook)*. National Institute of Urban Affairs (CITIIS).
- Khosla, A., & Sethi, M. (Eds.). (2023). *Sustainable development in India: Pathways, practices, and policy innovations*. Oxford University Press.
- Ramachandra, T. V., & Sudhira, H. S. (2023). *Sustainable urban planning in India: Integrating environment, economy, and society*. Routledge India.

UNIT III

- Gupta, D. (2025). *Framing India's low carbon development pathways*. Cambridge University Press.
- Nagendra, H., & Mundoli, S. (2023). *Shades of blue: Connecting the drops in India's cities*. Penguin Random House India.

UNIT IV

- Basu, D., Adhikary, M. M., & Biswas, D. (2007). *Participatory monitoring and evaluation of development programmes: Practitioners' guide*. Agrotech Publishing Academy.
- Dhamija, A., Misra, N., & Gogoi, I. S. (2019). *Project logical framework workbook for strategic planning of urban projects* . National Institute of Urban Affairs (CITIIS).
- Karnam, G. (2022). *Public expenditure in India: Policies and development outcomes*. Oxford University Press.
- Sidana, N. (2025). *Viksit Bharat@2047*. Bloomsbury Quest (Bloomsbury Publishing India Pvt. Ltd.).

Suggested Readings

- Blewitt, J. (2023). *Understanding sustainable development (4th ed.).* Routledge.
- Swilling, M., Hajer, M., & Baynes, T. (2023). *Sustainability transitions in practice.* Edward Elgar.
- Steve Bass, David H. Smith and Michael Stanley-Jones (2023). *Sustainable Development in Practice: Integrating Environment, Climate and Poverty Reduction.* United Nations Development Programme–United Nations Environment Programme Poverty-Environment Action: Nairobi.
- Lee, N. and C. Kirkpatrick (Eds). 2000. *Integrated Appraisal and Sustainable Development in a Developing World.* Cheltenham, Edward Elgar.

Journal Articles

- Bandari, R., et al. (2024). *Transdisciplinary approaches to local sustainability and SDGs.* Sustainability Science, *19*, 1293–1312.
- Lella, L., Oses-Eraso, N., & Stamos, I. (2024). *SDG monitoring frameworks for regions.* Ecological Indicators*, 166*, 112248.

- Sreenivasan, A., Suresh, M., & Nedungadi, P. (2023). *AHP research linked to SDGs*. Heliyon, 9, e19077.

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

DISCIPLINE SPECIFIC ELECTIVE COURSE
DESIGN PROCESSES IN BUILT SPACES

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 (if any)
		Lecture	Tutorial	Practical		
Design Processes in Built Spaces	**4**	**2**	**0**	**2**	**As per admission norm**	**Nil**

Learning Objectives

- Examine methods for urban context analysis, site zoning, microclimate study, and comprehensive movement planning in built environments.
- Cover essential building specifications, NBC requirements, and detailed design parameters for inclusive, universally accessible commercial and residential spaces.
- Outline the processes of project estimation, including material specifications, preparing proposals, managing site sourcing, budgeting strategies, and meeting deadlines.
- Examine the principles of waste management hierarchy, strategies for urban environments, and application of sustainable design for efficient waste handling systems.

Learning Outcomes

The students would be able to:

- Analyze urban context, topographical constraints, and microclimates to develop universally accessible movement and access plans for the built site.
- Apply NBC and Master plan standards to specify building requirements for residential and commercial projects, including specialized retail and event spaces.
- Prepare comprehensive project estimates, define material specifications, manage site sourcing/outsourcing, and document financial records for the construction process.
- Design and implement design solutions for waste management, applying the waste hierarchy and urban planning strategies to minimize environmental impact.

THEORY

(Credits 2; Hours 30)

UNIT I: Urban Site Planning and Contextual Design **8 Hours**

This unit focuses on analysing the urban environment, understanding site constraints, and integrating design solutions that respond to the wider community and infrastructure.

- Urban Context Analysis: Site Selection Criteria, Microclimate Analysis, Site Zoning, and Land Use.
- Site Design and Constraints: Topographical Planning, Utility Integration, Environmental Constraints.
- Movement and Access Planning: Traffic and Pedestrian Flow, Parking Strategy, Universal Accessibility at the Site Level
- Placemaking and Landscape Architecture: Open Space Design, Landscape Strategy,
- Boundary and Edge Conditions

UNIT II: Building Specifications **7 Hours**

This unit focuses on the technical and regulatory aspects of spatial design, covering the development of detailed plans for residential and commercial spaces.

- Building specifications for residential and commercial space design as per NBC, and Master plan
- Specific requirements for designing retail spaces - offices & showrooms
- Space planning for selected events - exhibitions and expos, seminars and conferences areas.
- Design parameters for creating universal spaces with focus on inclusivity (people with special needs, elderly, infants and children).

UNIT III: Project Estimation **8 Hours**

This unit teaches the essential skills for managing the financial and logistical aspects of a design or construction project, ensuring its successful implementation.

- Specifications of materials
- Estimating & budgeting: Types of cost estimations and preparing estimates and budgets
- Proposals & tenders
- Site management - Sourcing/ outsourcing
- Implementation of plan of work and meeting deadlines
- Record keeping & filing

UNIT IV: Waste Management in Urban Spaces **7 Hours**

This unit provides an in-depth look at the principles, strategies, and design applications for managing waste effectively in urban environments.

- Specifications of materials
- Introduction to Waste Management in Urban Environments
- Waste Management Hierarchy and Strategies
- Urban Planning and Waste Management
- Design Applications for Waste Management
- Future Directions and Research

Essential Readings

UNIT I:

This unit focuses on analysing the urban environment, understanding site constraints, and integrating design solutions that respond to the wider community and infrastructure.

- DeKay, M., & Brown, G. Z. (2014). *Sun, wind, and light: Architectural design strategies* (3rd ed.). Wiley.
- Gehl, J. (2011). *Life between buildings: Using public space*. Island Press.
- Lynch, K., & Hack, G. (1984). *Site planning* (3rd ed.). MIT Press.
- Waldheim, C. (2016). *Landscape as urbanism: A general theory*. Princeton University Press.

UNIT II:

This unit focuses on the technical and regulatory aspects of spatial design, covering the development of detailed plans for residential and commercial spaces.

- Buxton, P. (Ed.). (2021). *Metric handbook: Planning and design data* (7th ed.). Routledge.
- Bureau of Indian Standards. (2016). *National building code of India 2016* (Part 3 & 4).
- Central Public Works Department. (2016). *Harmonised guidelines and space standards on barrier free built environment for persons with disability and elderly persons*. Ministry of Urban Development, Government of India.
- Delhi Development Authority. (2021). *Master plan for Delhi - 2041*.
- Ministry of Urban Development. (2014). *Urban and regional development plans formulation and implementation (URDPFI) guidelines* (Vol. 1).

Government of India.

- Uzodimma, C., & Nwanegbo, G. T. (2023). Space efficiency and circulation: Parameters for a functional convention centre in international markets. *International Journal of Innovative Environmental Studies Research*, *11*(3), 23–27

UNIT III:

This unit teaches the essential skills for managing the financial and logistical aspects of a design or construction project, ensuring its successful implementation.

- Duggal, S. K. (2017). *Building materials* (5th ed.). New Age International.
- Gupta, M. K. (2024). *Practical handbook on building construction* (Reprint 2025). Khanna Publishers.
- *Note: In APA 7, use the actual publication year (2024) even if the marketing/reprint refers to 2025.*
- Lewis, H. (2020). *Bids, tenders & proposals: Winning business through best practice* (6th ed.). Kogan Page.
- Rowlinson, S. (Ed.). (2019). *The Routledge handbook of construction project procurement and delivery*. Routledge.
- Royal Institute of British Architects. (2020). *RIBA plan of work 2020 overview*. RIBA Publishing. https://www.architecture.com/knowledge-and-resources/resources-landing-page/riba-plan-of-work

UNIT IV:

This unit provides an in-depth look at the principles, strategies, and design applications for managing waste effectively in urban environments.

- Anagnostopoulos, C., Zaslavsky, A., & Medvedev, A. (2017). Waste management in the smart city: Current practices and future directions.

Smart Cities, *1*(1), 1–15. https://doi.org/10.3390/smartcities1010001.

- Connett, P. (2013). *The zero waste solution: Untrashing the planet one community at a time*. Chelsea Green Publishing.
- Ghosn, R., & Jazairy, E. H. (2015). *Geographies of trash*. Actar.
- Kumar, S. (Ed.). (2016). *Municipal solid waste management in developing countries*. CRC Press.
- Ministry of Environment, Forest and Climate Change. (2016). *Solid waste management rules, 2016*. Government of India.
- Webster, K. (2017). *The circular economy: A wealth of flows* (2nd ed.). Ellen MacArthur Foundation Publishing.

Suggested Readings

- Meredith, J. R., & Shafer, S. M. (2020). *Project management in practice* (7th ed.). Wiley.
- Mislick, G. K., & Nussbaum, D. A. (2015). *Cost estimation: Methods and tools*. John Wiley & Sons.
- DeChiara, J., Panero, J. & Zelnik, M. (2011). Time Saver Standards for Building types, second edition. McGraw-Hill Education

PRACTICAL

(Credits 2; Hours 60)

1. Preliminary Residential Design: Apply building specifications and design principles to create a preliminary architectural design for a residential building.
2. Commercial Space Layout: Design a commercial space (e.g., a retail store, a restaurant, or an office) focusing on specific design requirements and optimizing customer flow.

3. Event Layout Planning: Plan and design the layout for a specific event (e.g., an exhibition, a conference, or a seminar) considering spatial needs and logistics.
4. Small-Scale Cost Estimation: Prepare a detailed cost estimate for a small-scale construction project (e.g., a residential extension or a small commercial building).
5. Project Documentation Development: Develop and maintain all required project documentation for a simulated construction project, ensuring accuracy and completeness.
6. Construction Waste Practice Analysis: Analyze and document the waste management practices currently implemented at a local construction site.
7. Commercial Waste Practice Analysis: Analyze and document the waste management practices currently implemented at a commercial establishment.
8. Sustainable Design Element Creation: Design a sustainable design element to be integrated into either an existing building or a proposed project.
9. Event Waste Minimization Plan: Develop a waste minimization plan specifically tailored for a particular event or planned activity.
10. Activity Waste Minimization Plan: Develop a waste minimization plan for a generic specific activity not related to a construction site or commercial establishment.

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