

- Kotler, P., & Keller, K. L. (2016). *Marketing Management* (15th ed.). Pearson.
- Ries, A., & Trout, J. (2001). *Positioning: The Battle for Your Mind*. McGraw-Hill.

Suggested Readings

- Cross, N. (2011). *Design thinking: Understanding how designers think and work*. Bloomsbury Academic.
- Crawford, C. M., & Di Benedetto, C. A. (2011). *New products management* (11th ed.). McGraw-Hill Education.
- Green, W. S., & Jordan, P. W. (Eds.). (1999). *Human factors in product design: Current practice and future trends*. Taylor & Francis.
- Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson Education.
- Petrov, V. (2019). *Theory of inventive problem solving: Level 1*. Springer.
- Salvendy, G. (Ed.). (2021). *Handbook of human factors and ergonomics* (5th ed.). John Wiley & Sons, Inc.
- Sawyer, R. K. (2012). *Explaining creativity: The science of human innovation* (2nd ed.). Oxford University Press.
- Sherman, B., & Bently, L. (2019). *The making of modern intellectual property law*. Cambridge University Press.
- Ulrich, K. T., & Eppinger, S. D. (2019). *Product design and development* (7th ed.). McGraw-Hill Education.

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Bachelors in Arts with With Community Science Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-RMDA 12-HSC: RESOURCE MANAGEMENT AND SUSTAINABLE DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY, PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical		
Resource Management and Sustainable Development	4	3	1	0	XII Pass	Appeared in Introduction to Resource Management

Learning Objectives

- To build an inter-disciplinary perspective on understanding environmental concerns, sustainable development and its challenges.
- To familiarize students with current debates and perspectives with respect to sustainable development.
- To familiarize students with the concepts of sustainable resource management.

- To develop skills and competencies amongst students with regard to energy, water and waste management.

Learning Outcomes

The students would be able to:

- Build an understanding of environmental concerns, sustainable development and its challenges.
- Understand the concept of resources and developmental issues with respect to sustainable development.
- Develop skills in sustainable resource management.

THEORY **(Credit 3; Hours 45)**

UNIT I: Introduction to Sustainable Development

15 Hours

This unit introduces the concept, need, principles, and goals of sustainable development, along with key global milestones and initiatives.

- Concept of sustainable development
- Need, objectives and principles of sustainable development
- National and international milestones, initiatives, summits and protocols
- Sustainable Development Goals (SDGs)

UNIT II: Resources and Developmental Issues

10 Hours

This unit explores environmental challenges, resource consumption and sustainable resource management.

- Environmental concerns, population explosion, urbanization, globalization, economic development, ecological footprint, carbon footprint
- Perspectives in resource consumption
- Sustainable management of key resources: Land, green cover, water, air, waste

UNIT III: Sustainable Resource Management

10 Hours

This unit covers sustainable management of energy, water, waste, and air through strategies like energy auditing, rainwater harvesting, and air quality monitoring.

- Energy management – star labelling, energy auditing, renewable energy
- Water management – Rain water harvesting- Calculation of rainwater harvesting potential, water auditing, waste water recycling, water testing
- Waste management – Waste to energy plants, waste to wealth
- Air management – Air quality, AQI

UNIT IV: Green Practices by Industry

10 Hours

This unit throws light on green practices by industry and green building rating systems.

- Sustainable practices by industry
- CSR initiatives
- Green buildings: need and importance
- Green building rating systems

TUTORIAL (Credit1; Hours 15)

1. Case studies on sustainable initiatives/CSR initiatives by industry.
2. Creation of awareness generation material for issues related to sustainable development.
3. Organizing events/competitions to commemorate important environment related days/Current issues related to environment and sustainable development.
4. Calculation of ecological and carbon footprint using various applications and websites.
5. Case studies on green buildings.
6. Understanding electricity bills: components and calculations.
7. Understanding BEE star labels as an initiative towards sustainable energy consumption.
8. Energy auditing for sustainable energy management.
9. Portfolio/Survey on renewable energy products available in the market.
10. Air/noise/water testing, AQI applications and websites.
11. Green modes of transportation, E-vehicles: components and calculations.
12. Composting for sustainable waste management.
13. Case studies on waste management.

Essential Readings

UNIT I

This unit introduces the concept, need, principles, and goals of sustainable development, along with key global milestones and initiatives.

- **Agarwal, S., & Mishra, R. (2021).** *Capacity Building for Sustainable Development: Concepts, Approaches and Experiences*. Sage India
- **Baxi, C. V., & Agrawal, A. (2020).** *CSR in India: Practices and Policies*. Excel Books India.
- **Das, S. K., & Patra, S. (2022).** *Corporate Social Responsibility and Sustainable Development in India*. Sage India.
- **Kumar, S., & Jain, A. (2020).** *Sustainable Development: Principles and Practices in India*. PHI Learning India.

UNIT II

This unit explores environmental challenges, resource consumption and sustainable resource management

- **Bhatt, K. P. (2023).** *Environmental Policy, Governance and Sustainable Development in India*. Routledge India.
- **Desai, D., & Sheth, R. (2021).** *Green Buildings in India: Design, Technology, and Sustainability*. McGraw Hill India.
- **Reddy, D. N., Reddy, O. S., Reddy, Y. J., & Reddy, K. V. (2020).** *Sustainable Development and Policy Planning*. Himalaya Publishing House.
- **Singh, R., & Singh, P. (2021).** *Sustainable Resource Management in India*. New India Publishing Agency.
- **Singh, A., & Kumar, P. (2022).** *Sustainable Development and Climate Change: Carbon and Ecological Footprint Assessment in India*. Springer India.

UNIT III

This unit covers sustainable management of energy, water, waste, and air through strategies like energy auditing, rainwater harvesting, and air quality monitoring.

- **Singh, R., & Singh, P. (2021).** *Sustainable Resource Management in India*. New India Publishing Agency
- **Bhattacharya, S. (2020).** *Waste Management and Sustainable Practices in India*. Sage India.
- **Thakur, B., Thakur, R. R., Chattopadhyay, S., & Abhay, R. K. (Eds.). (2023).** *Resource management, sustainable development and governance: India and international perspectives*. Springer.
- **Prasad, R., Jhariya, M. K., & Banerjee, A. (2021).** *Advances in sustainable development and management of environmental and natural resources: Economic outlook and opinions*. CRC Press, Taylor & Francis Group.
- **Goel, S. (Ed.). (2016).** *Management of resources for sustainable development*. Blackswan Publications.
- **Rao, P., & Sharma, K. (2020).** *Air Quality Management and Pollution Control in India*. New India Publishing Agency.

UNIT IV

This unit throws light on green practices by industry and green building rating systems.

- **Desai, D., & Sheth, R. (2021).** *Green Buildings in India: Design, Technology, and Sustainability*. McGraw Hill India.
- **Mehta, M., & Agarwal, S. (2020).** *Sustainable Architecture and Green Buildings in India*. Excel Books India.
- **TERI The Energy and Resources Institute, (2022).** *Green Building Guidelines and Rating Systems in India*. TERI Press.
- **Sundar, I. (2006).** *Environment and sustainable development*. APH Publishing Corporation.

Suggested Readings

- **Patel, B. N., & Nagar, R. (2018).** *Sustainable development and India*. Oxford University Press India.
- **Filho, W. L., Rogers, J., & Raniga, U. I. (Eds.). (2018).** *Sustainable development research in the Asia-Pacific region: Education, cities, infrastructure and buildings* (World Sustainability Series). Springer.
- **UN Millennium Project. (2005).** *Innovation: Applying knowledge in development*. Science, Technology and Innovation Task Force Report.
- **World Bank. (2006).** *Enhancing agricultural innovation: How to go beyond the strengthening of research systems*. World Bank: Agriculture and Rural Development.

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