COURSE HANDOUT

COURSE

DESIGN FOR SUSTAINABILITY [UGMDC-303 (B)]

B.COM (H) – 3rd Semester

ACADEMIC YEAR (2024-2025)

Ms. Paramdeep Kour

Assistant Professor

UG- School of Management

UG- School of Management
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Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Max. Marks
UGMDC-303 (B)	Design for Sustainability	MDC	3	3	0	0	40	60	100

Course Outcomes:

At the end of the course the student will be able to:	
CO1	Examine the concept of sustainable development.
CO2	Articulate the emerging global challenges for a sustainable environment.
CO3	Analyse the role of the Product service system for sustainability.
CO4	Evaluate system design for sustainability.
CO5	Apply different approaches to Life Cycle Design in real world scenarios.

Detailed Syllabus

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
UGMDC-303 (B)	**Design for Sustainability**	**MDC**	**3**	**3**	**0**	**0**	**40**	**60**	**100**

Section A

Unit I: Ecosystem and Sustainability: Fundamentals of ecology - types of ecosystems & interrelationships, factors influencing sustainability of ecosystems, ecosystem restoration - developmental needs. Concept and Dimensions of Sustainability and Sustainable Development, Emergence of Sustainability, System Innovations for Sustainability, Challenges to Sustainable Development.

(07Hrs.)

Unit II: Gauging Sustainable Development: Millennial Development Goals and Sustainable Development Goals (SDG), UN SDGs - Pillars and Partnerships. UN Global Compact, ISO 14000, European Sustainability Agenda and Asian Sustainability Agenda.

(08Hrs.)

Unit III: Product Service System and Sustainability: Concept and Types of Product-System System (PSS), Benefits of PSS for producer/provider and Customer, Limitations of PSS, Product-Service Systems for emerging and low-income contexts. PSS design for sustainability, main approaches in PSS for sustainability: Satisfaction System, Stakeholder Configuration, and System Sustainability.

(08 Hrs.)

Section B

Unit IV: Methods and tools for system design for sustainability: Criteria, MSDS: a modular method for system design for sustainability, Design Tools for system Design for Sustainability: Sustainable system design steering tools and Stimulus and support tools for the generation of ideas and strategic to system design.

(07Hrs.)

Unit V: Life Cycle Design: Introduction to life cycle design, relevance of life cycle design for sustainability, l methods and strategies for life cycle design, approaches to life cycle design, life cycle assessment, framework for life cycle assessment.

(06Hrs.)

Textbooks:

S.No.	NameoftheBooks	Author	Publisher	Edition(Pub.Yr.)
1.	An Introduction to Sustainable Development	Elliott, Jennifer	Routledge	4th (2012)
2.	Product-Service System Design for Sustainability	Carlo Vezzoli, Cindy Kohtala and Amrit Srinivasan	Greenleaf Publishing	1st (2014)

Reference Books:

S.No.	NameoftheBooks	Author	Publisher	Edition(Pub.Yr.)
1.	Sustainable Engineering: Concepts, Design, and Case Studies	David Allen, David R. Shonnard	Prentice Hall	1st (2012)
2.	Sustainable Development Report 2020: The Sustainable Development Goals and Covid-19- Includes the SDG Index and Dashboards	Jeffrey Sachs Jeffrey Sachs	Cambridge	1st (2021)

COURSE PLAN		
Unit 1 Ecosystem and Sustainability		
S. No.	**Content**	**Recommended Books**
1	Fundamentals of ecology - types of ecosystems & interrelationships	https://www.sciencedirect.com/topics/engineering/ecosystems
2	Factors influencing sustainability of ecosystems	https://sciencing.com/factors-affecting-the-ecosystem-13428099.html
3	Ecosystem restoration - developmental needs	Book 1, Ch. 4
4	Concept and Dimensions of Sustainability and Sustainable Development	Book 2, Ch. 1
5	Emergence of Sustainability	Book 1, Ch. 1
6	System Innovations for Sustainability	Book 2, Ch. 1
7	Challenges to Sustainable Development	Book 1, Ch.2
Unit-2 Gauging Sustainable Development		
8	Millennial Development Goals and Sustainable Development Goals (SDGs)	Ref. Book 1, Ch. 1
9	UN SDGs - Pillars and Partnerships	https://sdgs.un.org/goals/goal17
10	UN Global Compact	https://unglobalcompact.org/what-is-gc/our-work/sustainable-development
11	ISO 14000	Book 1, Ch. 5
12	European Sustainability Agenda and Asian Sustainability Agenda	Book 2, Ch. 1
Unit-3 Product Service System and Sustainability		
13	Concept and Types of Product-Service System (PSS)	Book 2, Ch.3
14	Benefits of PSS for producer/provider and Customer	Book 2, Ch. 2
15	Limitations of PSS	Book 2, Ch. 2

16	Product-Service Systems for emerging and low-income contexts	Book 2, Ch.6
17	PSS design for sustainability	Book 2, Ch. 3
18	Main approaches in PSS for sustainability: Satisfaction System, Stakeholder Configuration, and System Sustainability.	Book 2, Ch. 3
Unit-4 Methods and tools for system design for sustainability		
19	Criteria, MSDS: a modular method for system design for sustainability	Book 2, Ch. 4
20	Design Tools for System Design for Sustainability: Sustainable system design steering tools and Stimulus and support tools for the generation of ideas and strategic to system design.	Book 2, Ch.4
Unit-5 Life Cycle Design		
21	Introduction to life cycle design	Ref. Book 1, Ch. 2
22	Relevance of life cycle design for sustainability	Book 1, Ch. 12
23	Methods and strategies for life cycle design	Book 1, Ch. 13
24	Approaches to life cycle design	Book 1, Ch.13
25	Life cycle assessment	Ref. Book 2, Ch. 2
26	Framework for life cycle assessment	Ref. Book 2, Ch. 5

ADDITIONAL WEB RESOURCES

1.	NPTEL; https://onlinecourses.nptel.ac.in/noc21_de09/preview?fbclid=IwAR0BNK9aHg7EdFGzct9ObSk9Ukp_sVm5psubB901ZqClf5-Jz_CYCfjnGwo
2.	Coursera: https://www.coursera.org/learn/sustainability

GRADING AND ASSESSMENT

- **Sessional Test:** 20 marks
- **Assignment:** 10 Marks
- **Attendance:** 10 Marks
- **Final Examination:** 60 Marks

COURSE POLICIES

- **Attendance:** Minimum 75% of attendance is mandatory to appear in the final examination of the course.
- **Academic Integrity:** MIET's academic integrity policies apply. Plagiarism will not be tolerated.
- **Late Submission:** Assignments and projects must be submitted by the specified timeline.

FACULTY INFORMATION

- **Office Hours**

  Monday (2:35PM-3:35PM)

  Friday (2:35PM-3:35PM)

- **Contact Information**

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