SHARDA UNIVERSITY
Beyond Boundaries

NAAC A+ ACCREDITED

SHARDA SCHOOL OF
BIO SCIENCE &
TECHNOLOGY

COURSE

Environmental Awareness & Communication (NV32011)

VALUE ADDED
COURSE BROCHURE-30 HRS
2025-26

ABOUT THE UNIVERSITY

Sharda University is a leading educational institution based out of Greater Noida, Delhi NCR. A venture of the renowned Sharda Group of Institutions (SGI), The University has established itself as a high-quality education provider with prime focus on holistic learning and imbibing competitive abilities in students.

The University is approved by UGC and prides itself in being the only multi-discipline campus in the NCR, spread over 63 acres and equipped with world class facilities.

Sharda University promises to become one of the India's leading universities with an acknowledged reputation for excellence in research and teaching. With its outstanding faculty, world class teaching standards, and innovative academic programs, Sharda intends to set a new benchmark in the Indian education system.

Sharda School of Basic Sciences and Research (SSBSR) boasts of providing an interdisciplinary approach, exposure to different disciplines in science including Chemistry, Biochemistry, Physics, Mathematics, Life Sciences, and Environmental Sciences.

ABOUT SCHOOL

Sharda School of Basic Sciences and Research (SSBSR) boasts of providing an interdisciplinary approach, exposure to different disciplines in science including Chemistry, Biochemistry, Physics, Mathematics, Life Sciences, and Environmental Sciences. The Sharda School of Basic Sciences and Research is unique from other institutions of higher learning as it is committed to imparting knowledge in pure and applied sciences, which not only forms the foundation for further academic pursuits in science and technology but also acts as the foundation for students to pursue a career in multi facet directions. The academic programs are designed to meet the requirement of the latest technological developments and envisages to become a state-of-the-art department that cater the students at Graduate, Post- Graduate and Research level along with providing high- quality education and cutting-edge interdisciplinary research in sciences. SSBSR has well-equipped laboratories for Physics, MATLAB, Microbiology, Molecular Biology, Cell Culture, Virology, Biochemistry, Physical, Organic and Inorganic chemistry for Graduate and Post-Graduate Programs. In addition, there are Central Instrumentation Facility (CIF) and other advance research labs to promote research culture.

About Environmental Science Department

The Department of Environmental Science is to produce educated community who will ensure clean, safe, secured, and sustainable environment for all.

Environmental Communication and Public Speaking- NV32011

ABOUT COURSE

This course is designed to empower students with the skills and knowledge needed to effectively communicate environmental issues to diverse audiences. Combining principles of environmental science, communication strategies, and public speaking techniques, the course prepares students to advocate for sustainable practices, influence public opinion, and drive environmental action.

COURSE CONTENT

Week	Content	Duration
1.	Introduction to Environmental Communication	Week 1
2.	The Role of Public Speaking in Environmental Advocacy	Week 2
3.	Verbal and Non-verbal Communication Skills	Week 3
4.	Structuring Environmental Presentations	Week 4
5.	Communicating Scientific Data	Week 5
6.	Test/Quiz	Week 6

RESOURCE PERSON

Dr. Km. Rachna

Dr. Km. Rachna is Assistant Professor at Department of Environmental Science, School of Basic Science & Research, Sharda University (NAAC A+), Greater Noida, UP, India. Dr. km. Rachna is awarded with PhD degree in Nanoscience and Technology from Sharda University in 2020. During her Ph. D work, she has been worked as SRF in DRDO sponsored Project Her area of research is water treatment using nanocomposite and polymer thin film using different types of polymers. She has more than 10 years of research experience. She has published 16 research papers in reputed national/international journals, as of now. She has attended and presented research papers in various national and international conferences. During her research, she has published many research papers in reputed journal and book chapter also.

School: SSBSR **Programme: UG.** **Branch:**	**Batch : 2024-2026** **Current Academic Year: 2024-2025** **Semester : V**

1. Course Code	NV32011
2. Course Title	Environmental Awareness & Communication
3. Credits	0
4. Contact Hours (L-T-P)	30 Hours
Course Type	Value added course
5. Course Objective	1. This course aims to: 2. Introduce students to the foundational principles of communication theory, particularly as they relate to environmental science. 3. Develop students' abilities to effectively communicate environmental issues to a wide range of audiences, including the public, stakeholders, and policymakers. 4. Enhance students' public speaking skills by providing strategies for delivering clear, confident, and persuasive presentations. 5. Teach students how to present complex scientific and environmental data in a way that is accessible and engaging, using visuals and other communication tools.
6. Course Outcomes	On successful completion of the course, students will be able to: CO1: The student will be able to Understand Communication Theories CO2: The student will be able to learn Craft Effective Environmental Messages: CO3: The student will be able to understand about the Present Scientific Data Clearly: CO4: The student will understand about the Enhance Public Speaking Skills: CO5: The student will be able to understand Use Media and Visual Tools. CO6: The student will be able to understand the Ethically Communicate Environmental Messages:
7. Course Description	This course focuses on the principles and techniques of effective communication and public speaking, specifically tailored to environmental science contexts. Students will learn how to convey complex environmental issues to various audiences, including the public, policymakers, and scientific communities. Emphasis will be placed on developing both verbal and non-verbal communication skills, crafting persuasive messages, and presenting scientific data clearly and engagingly.

8. Outline syllabus		CO Mapping
Unit 1	**Introduction to Environmental Communication**	
A	Definition, need, and importance	CO1,CO6
B	Evolution of environmental awareness	CO1,CO6
C	Communication models and theories	CO1,CO6
Unit 2	**Environmental Issues and Public Perception.**	
A	Major environmental problems: climate change, pollution, biodiversity loss, etc.	CO2,CO6
B	Role of values, beliefs, and culture in environmental perception	CO2,CO6
C	Risk communication and behavior change models	CO2,CO6
Unit 3	**Public Speaking and Visual Communication**	
A	Techniques of effective public speaking	CO3,CO6
B	Reporting environmental news	CO3,CO6
C	Case studies of media coverage on climate change, pollution, etc.	CO3,CO6
Unit 4	**Environmental Communication**	
A	Definition and scope	CO4,CO6
B	Historical development and key milestones.	CO4,CO6
C	Interdisciplinary nature: science, media, and society	CO4,CO6
Unit 5	**Media and Advocacy**	
A	Environmental journalism and writing	CO5,CO6
B	Role of NGOs and civil society in awareness	CO5,CO6
C	Ethics in environmental communication	CO5,CO6
Mode of Examination	Quiz/Viva	

Energy from waste - Nv3116

ABOUT COURSE

This course aims to provide insights of various routes of waste to energy generation which include thermal, biological and chemical routes. Various wastes to energy recovery technologies are delineated along with their economic aspects to support the sustainable management of waste in rural and urban areas. The case studies of waste to energy generation throughout the world will be incorporated to provide a better understanding of contemporary practices of this field.

COURSE CONTENT

Week	Content	Duration
1.	Introduction to energy from waste	Week 1
2.	Scenario of waste generation	Week 2
3.	Environmental, Economic & Regulatory Aspects	Week 3
4.	Conversion Technologies	Week 4
5.	Case Studies	Week 5
6.	Test/Quiz	Week 6

School: SSBSR **Programme: PG.** **Branch:**	**Batch : 2023-2025** **Current Academic Year: 2024-2025** **Semester :**

1. Course Code	NV3116
2. Course Title	Energy from Waste
3. Credits	0
4. Contact Hours (L-T-P)	30 Hours
Course Type	Value added course
5. Course Objective	1. To provide knowledge about Waste to Energy. 2. To enable student to understand the technical and management principles for production of energy form waste. 3. To build the understanding of the best available technologies for waste to energy. 4. To analyze waste management practices for waste minimization and resource recovery 5. To enable the understanding of technological advancements and innovation for waste to energy 6. To provide knowledge about real time observation of case studies.
6. Course Outcomes	On successful completion of the course, students will be able to: CO1: Explain the technologies for waste to energy options CO2: The student will be able to understand about the waste generation scenario. CO3: Explain the waste to energy generation process. CO4: Explain the concept of waste to energy conversion technologies in contemporary era (such as gasifiers/reactors, biogas digesters, fermenters). CO5: Explain about various recycling and recovery of resources from various solid/liquid wastes CO6: The student will be able to understand about the sustainable practice waste management practices for clean and green society
7. Course Description	This course aims to provide insights of various routes of waste to energy generation which include thermal, biological and chemical routes. Various wastes to energy recovery technologies are delineated along with their economical aspects to support the sustainable management of waste in rural and urban areas. The case studies of waste to energy generation throughout the world will be incorporated to provide a better understanding of contemporary practices of this field.

8. Outline syllabus		CO Mapping
Unit 1	**Introduction to energy from waste**	
A	Importance of waste-to-energy in sustainable waste management	CO1,CO6
B	Characterization and classification of waste as fuel Sources and types of wastes– agro based, forest	CO1,CO6
C	residues, industrial waste, Municipal solid waste. Physical, chemical and biological properties of wastes	CO1,CO6
Unit 2	**Scenario of waste generation**	
A	Urban and rural scenario waste generation	CO2,CO6
B	Indian scenario on energy from waste	CO2,CO6
C	Global scenario on energy from waste	CO2,CO6
Unit 3	**Environmental, Economic & Regulatory Aspects**	
A	Cost-benefit and feasibility analysis.	CO3,CO6
B	Environmental impacts and mitigation.	CO3,CO6
C	Indian and international WtE policies and regulations.	CO3,CO6
Unit 4	**Conversion Technologies**	
A	Combustors (Spreader Stokes, Moving grate type, fluidized bed).	CO4,CO6
B	Gasifier, digesters. Briqueting technology: Production of RDF and briquetted fuel.	CO4,CO6
C	Biogas digesters, fermenters, etc.	CO4,CO6
Unit 5	**Case Studies**	
A	Success and Failures of Indian Waste to Energy plants,	CO5,CO6
B	Case studies highlighting pyrolysis and gasification technologies Conversion of waste into syngas and biofuels.	CO5,CO6
C	Role of the Government in promoting 'Waste to Energy'	CO5,CO6
Mode of Examination	Quiz/Viva	
Other References	**Reference Books:** 1. "Waste to Energy: Technologies and Project Implementation" by Marco J. Castaldi. 2. Waste to Energy Conversion Technology" by Naomi B. Klinghoffer. 3. Report of the task Force on Waste to Energy, Niti Ayog (Formerly Planning Commission) 2014. Municipal Solid Waste Management Manual, CPHEEO, 2016 4. Industrial and Urban Waste Management in India, TERI Press.	