BACHY101	Environmental Sciences	L	T	P	C
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Pre-requisite	NIL	Syllabus version
		1.0

Course Objectives:

The course is aimed at students:

1. To equip themselves with foundational knowledge of environmental systems, sustainability principles, and pollution control methods, to support applications in real-world engineering scenarios.
2. To develop requisite skills related to sustainable practices, environmental protection, and policy frameworks.

Course Outcomes:

At the end of the course, the students will be able to:

1. **Explain** key environmental concepts like ecosystems and biodiversity.
2. **Interpret** the impact of energy usage, pollution, and waste on environmental quality.
3. **Apply** knowledge of environmental laws and sustainable development goals to achieve practical solutions for environmental protection.
4. **Evaluate** the human impact on climate change and the role of IT and AI in mitigating environmental issues.

Module: 1	Fundamentals of Environment and Ecosystems	6 hours

Definition and scope of environmental science, Earth as a life-support system, Ecosystem definition, Components of the environment (biotic & abiotic), Structure and function of ecosystems, Energy flow in an ecosystem, and ecological succession.

Module: 2	Biodiversity and Environmental Quality	6 hours

Biodiversity definition, levels, significance, and threats. Species interaction, types- extinct, endemic, endangered, and rare species. Conservation strategies and genetically modified crops. Environmental hazards: definition, types, causes, and solutions: Biological (Malaria, COVID-19), chemical (BPA, heavy metals), and disaster management.

Module: 3	Pollution and Its Management Techniques	6 hours

Types of pollution: air, water, soil, noise, thermal- causes, effects, and control methods, water management, its conservation, circular economy and solid waste management techniques.

Module: 4	Environmental Laws and Sustainable development goals	6 hours

Environmental impact assessment (EIA), Key national and international environmental laws- Environmental protection act (EPA) – Air, Water, forest conservation and wildlife protection acts, Kyoto and Paris Agreement. Introduction to Sustainable development goals (SDGss).

Module: 5	Climate Change and Emerging Environmental Issues	4 hours

Climate change science and global warming, carbon footprint and mitigation strategies, role of AI/IoT in environmental monitoring.

Module: 6	Contemporary topics	2 hours

Lecture on green energy technologies

Total Lecture hours:	30 hours

Assessment: Quiz (MCQ)

Text Books

1. G. Tyler Miller and Scott E. Spoolman (2020), Environmental Science, 15th Edition, Cengage learning.

2. Erach Bharucha(2023),Textbook of Environmental Studies for Undergraduate students, 4th Edition, Orient Blackswan Pvt. Ltd.

Reference Book(s)			
1. Richard T. Wright & Dorothy F. Boorse (2020), Environmental Science: Toward a Sustainable Future, 13th Edition, Pearson Education. 2. Anubha Kaushik & C.P Kaushik (2021), Perspectives in Environmental Studies, 7th Edition, New Age International Publishers. 3. Benny Joseph (2021), Environmental Studies, 3rd Edition, McGraw-Hill Education.			
Recommended by the Board of Studies			
Approved by the Academic Council	No.	Date	

BACHY101 – Environmental Sciences

Fall semester 2025-26

Course Execution Plan

- The course is delivered online in accordance with SWAYAM guidelines.

Course Schedule:

Week #	Duration	Content's
1.	25th to 31st August 2025	Recorded Video materials, Reading materials, Live classes, Discussion forum, Quizzes and Mid Term
2.	1st to 7th September 2025	
3.	8th to 14th September 2025	
4.	15th to 21st September 2025	
5.	22nd to 28th September 2025	
6.	13th to 19th October 2025	

Assessment Plan:

S.No	Component	Type	Portion	Date and time	Weightage
1	Quiz-1	CAM	Week 1,2	4-9-2025 8:30 pm	Best 3 quiz performance with 30% weightage
2	Quiz-2	CAM	Week-3	11-9-2025 8:30 pm	
3	Quiz-3	CAM	Week-4	18-9-2025 8:30 pm	
4	Quiz-4	CAM	Week-5,6	16-10-2025 8:30 pm	
5	Mid Term	CAM	Week-1 to 4	During CAT-2	30%
6	FAT	FAT		As per CoE schedule	40%

Synchronous Class:

Week #	Date	Time	Mode
1.	26th August 2025 (Tuesday)	**8:00 pm to 8:50 pm**	**Online mode using MS Teams**
2.	2nd September 2025 (Tuesday)		
3.	9th September 2025 (Tuesday)		
4.	16th September 2025 (Tuesday)		
5.	23rd September 2025 (Tuesday)		
6.	14th October 2025 (Tuesday)		

- The course is delivered through the **VITOL Moodle platform**: https://moovitol.vit.ac.in.
- Each week, students will receive about **5 to 6 recorded videos** along with **reading materials**.
- Students can use the **discussion forum in the LMS** to raise doubts and respond to their peers' questions.
- Faculty members will provide **open office hours** for students to discuss their doubts in person.
- Faculty members will also conduct a **one-hour live class every week** to interact with students and clarify queries.
- **Three best quiz scores out of four quizzes** will be considered, carrying a total **weightage of 30 marks** (10 marks for each quiz).
- A **midterm exam** with a **weightage of 30 marks** will be conducted during CAT-2. This will be a **computer-based MCQ exam** held in VIT labs, with **30 questions in 45 minutes**.
- Students may contact their **course faculty members** for any academic doubts.
- The **Final Assessment Test (FAT)** will be conducted in VIT labs as per the schedule given by the CoE. This will be a **computer-based MCQ exam** with **40 questions in 60 minutes**, carrying a **weightage of 40 marks**.
- Any **technical issues** related to course access can be reported to **lms.vitol@vit.ac.in**.

Question paper format for all UG, PG and Research Degrees Examinations Format – 1

VIT Vellore Institute of Technology (Deemed to be University under section 3 of the UGC Act, 1956)	**Final Assessment Test – WINTER 2024-25 Semester - MAY 2025**	
	Course code : **CHY 1002**	Slot : **E2+TE2**
	Course Title : Environmental Sciences	Time: **Three Hours**
	Class Number(s) : VL2024250504375, VL2024250504371, VL2024250504370	Max. Marks: **100**
	Faculty NameS : THIRUMOORTHY K. U. VIJAYALAKSHMI, SRINIVASAN LATHA	School: SAS
	Emp Id : 15507	Mobile No.: 8248703870

KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE

General Instructions if any:

1. **Non Programmable calculator is permitted : ~~YES~~ /NO**
2. **Reference tables are permitted: ~~YES~~ / NO**

Answer ALL Questions

(10 X 10 = 100 Marks)

TSl. No:	Questions	Module No	Marks	CO	BL	E/A/T
1.	Food web is the gift of Nature! Bring out the significance of food webs over food chains. **Suggest** the energy flow in an ecosystem and explain the two laws of thermodynamics.	1	**10**	**1**	**3**	**A**
2.	**Paraphrase** the statement: Cane toads were an ineffective biocontrol in Australia. Explain the terms invasive, endangered	2	**10**	**3**	**2**	**T**
3.	**Determine** the causes, symptoms, diagnosis, treatment and prevention of AIDS.	3	**10**	**4**	**3**	**E**
4.	Solar energy can be the potentially explored in India. **Examine** the advantages and disadvantages of utilizing solar energy. What are two schemes implemented by the Government of India to promote solar energy?	4	**10**	**6**	**3**	**T**
5.	**Describe** the salient features of wildlife protection act and share two points on the need to celebrate wildlife week from October 2nd to October 8th every year.	5	**10**	**6**	**1**	**E**
6.	**Paraphrase** how integrated urban planning strategies can be designed to simultaneously address multiple environmental challenges, such as air pollution, waste	6	**10**	**7**	**2**	**T**

	management, and water scarcity, in rapidly growing cities.					
7.	**Write** a brief note on Kyoto protocol and its significance. Explain the methods that are used for the long-term storage of carbon dioxide.	7	**10**	**6**	**3**	**A**
8.	**Elaborate** on the inevitable role of information technology on conserving our environment.	7	**10**	**7**	**2**	**E**
9.	A) **Illustrate** the nitrogen cycle and the impact of human activities on the nitrogen cycle thereby influencing the environment. (OR) B) Introduction of genetically modified crops into the Indian market still remains a challenge. **Compare** the pros and cons of these genetically modified crops in our country with suitable examples.	1 2	**10**	**1**	**2**	**A**
10.	A) **Suggest** suitable solid waste management strategies for managing the solid wastes in (a) CMC hospital and (b) VIT hostels. (OR) B) Students must be aware of green consumerism from an earlier age. What are the strategies that you will **employ** to be a green consumer and ensure a sustainable living?	3 6	**10**	**4**	**3**	**T**
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Srinivasan Latha.

Signature with date