RAFFLES UNIVERSITY

TEACHING PLAN: Renewable Energy and Green Technology

SCHOOL: (SOAS) SCHOOL OF AGRICULTURAL SCINCES		ACADEMIC SESSION: 2023 – 2024		FOR STUDENTS' BATCH: 2022-2026 (Sem. 4TH)	
1	Course No.	AEN-T-202/AEN-P-202			
2	Course Title	**Renewable Energy and Green Technology**			
3	Credits	1+1			
4	Learning Hours	Contact Hours: 72; Assessment: 9; Guided Study: 9; Total hours: 90			
5	Course Objective	1. This course provides an understanding of renewable energy. 2. Describes the mechanism of renewable energy. 3. It also presents an overview of green technology. 4. This course describes how green technology is useful in our environment.			
6	Course Outcomes	1. Students will be able to understand the role of renewable sources in agriculture sector. 2. Students will be able to evaluate and understand the bio fuel production and their applications in today's world. 3. Students will be able to understand and utilizing the solar energy in various aspects. 4. Students will be able to understand and learn the environmental aspects of non-conventional energy resources and know the need of renewable energy resources and latest developments. 5. Students will also be able to acquire the knowledge of fuel cells, wave power, tidal power and geothermal principles and applications			
7	Outline syllabus:				
7.01	Subject Code	Unit	Introduction	Page Numbers	Lectures
7.02	AET-T-101	Unit I	1. Classification of energy sources, 2. Contribution of these of sources in agricultural sector, 3. Familiarization with biomass utilization for biofuel production and their application.		2 2 3
		Unit II	1. Familiarization with types of biogas plants and gasifiers, biogas, bio-alcohol, 2. Biodiesel and bio-oil production and their utilization as bio-energy resource.		3 3
		Unit III	1. Introduction of solar energy, collection and their application. 2. Familiarization with solar energy gadgets: solar cooker, solar water heater 3. Application of solar energy: solar drying, solar pond, solar distillation, solar photovoltaic system and their application.		2 2 3
		Unit IV	1. Introduction of wind energy and their application.		2

8	**Course Evaluation**	
8.1	**CA: 10%**	
8.1.1	**Attendance**	5 %
8.1.2	**Homework**	2 Assignments, 5%
8.1.3	**Quizzes**	-
8.1.4	**Projects**	-
8.1.5	**Presentation**	-
8.1.6	**Any other**	Practical Examination- 15%
8.2	**MTE**	30%
8.3	**End-term examination: 50%**	
9	**Text Books & References**	
9.1	**Text book**	1. Ghanshyan Das, Hydrology and Soil Conservation Engineering, McGraw Hill 2. Dutta SK., Soil Conservation and Land Management, International Distributors, Dehradun 3. Loucks D.P., Water Resource System Planning and Analysis, Prentice Hall
9.2	**References**	
9.3	**Video References**	

Outcome no. → Syllabus topic↓	1	2	3	4	5
Paper Code. Unit I (1)	✓				
Paper Code. Unit I (2)	✓	✓	✓	✓	✓
Paper Code. Unit I (3)	✓				
Paper Code. Unit II (1)	✓	✓	✓	✓	✓
Paper Code. Unit II (2)	✓		✓	✓	✓
Paper Code. Unit II (3)	✓	✓			
Paper Code. Unit III (1)	✓	✓	✓	✓	✓
Paper Code. Unit III (2)	✓				
Paper Code. Unit IV (1)	✓		✓	✓	✓
Paper Code. Unit IV (2)	✓	✓			

QUESTION BANK