

Vidya Bharati Shaikshanik Mandal's

Vidya Bharati Mahavidyalaya, Amravati

Admissions Open for

“Certificate Course in Non-Conventional Energy Sources”

(Approved by Sant Gadge Baba Amravati University, Amravati)

Under UGC Scheme of Career Oriented Programmes (COP)

organized by the **Department of Physics**

- 1) Name of the Course : ‘**Non-Conventional Energy Sources**’
- 2) Duration : 1 Year
- 3) Commencement of course : 10.09.2019
- 4) Course Coordinator : Dr. K. B. Raulkar
- 5) Eligibility : Students admitted to B.Sc. or M.Sc. (Physics)
- 6) Intake capacity : 40 (First Come First Service)
- 7) Contact Hours : 90 hrs.
- 8) Admission fee : No fee
- 9) Course Contents : As follows

A) Theory: 60hrs (12hrs/Unit) (Marks: theory paper = 80 and internal = 20, total = 100)

Unit-I: Introduction to Non-Conventional Energy system, Traditional energy sources, fossil fuel based system, impact of fossil fuel based system, need of non-conventional energy sources, seasonal variations availability, Renewable energy sources and features, Hybrid energy systems.

Unit-II: Wind Energy: - Basic principle of wind energy conversion, wind data and wind patterns, site selection, types of wind mills, advantages and disadvantages of wind energy conversion systems, troubleshooting in wind mills, introduction to tidal wave energy.

Unit-III: Biomass energy: - Introduction, biomass conversion technology, sources of biomass, biogas generation, factors affecting bio-digestion, classification of Anaerobic digesters, classification of biomass gasifiers, application of biomass energy, troubleshooting in biogas digesters.

Unit-IV: Solar thermal systems: Introduction to solar energy, solar radiation spectrum, radiation measurement, solar constant technologies, introduction to solar photovoltaic systems, operating principle, photovoltaic cell concept, cell, module, array, series and parallel connections.

Unit-V: Principle of solar collector, flat plate, concentrated collector, cylindrical parabolic collector, introduction to solar thermal energy applicable to heating, cooling, drying, distillation and power generation, introduction to solar water heating system, design, principle and construction of box type solar, cooker and water heater, troubleshooting in above applications, application PVC system (I) battery charging, (II) pumping, (III) lighting.

B) List of Experiments: 18 hrs (3hrs/experiment, marks = 50)
(Perform any six experiments of the following)

- 1) Study of Pyrometer
- 2) Measurement of global and diffused radiation using pyrometer
- 3) Study of sunshine recorder
- 4) Measurement of sunshine hours using sunshine recorder
- 5) Study of various types of flat plate collectors
- 6) Design and construction of a box type solar cooker
- 7) Design and construction of solar dryer
- 8) Study construction details of a wind mill
- 9) Study of a solar water heater
- 10) Study of a photovoltaic cell

C) Project work/ field work/training in institution for 10 days. (12 hrs, marks = 50)

Project work or field work related to any topic from the syllabus of each course.

D) Scheme of Examination:

1. Theory paper of 3 hrs duration (80 marks) and Practical examination of extending for 4 hours (50 marks).
2. One project (50 marks)
3. Distribution of marks:

Sr. No.	Paper/ Practical/project	Marks	Total marks
1.	Theory	80	100
	Internal assessment	20	
2.	Practical : Experiment	30	50
	viva	10	
	Practical record	10	
3.	Project	50	50
			200

4. Passing percentage will be 40%
5. Tentative examination date : At the end of **April month**
6. Result declaration : first week of June
7. Question Paper Pattern/model question paper:

Vidya Bharati Mahavidyalaya, Amravati
Certificate Course in Non-Conventional Energy Sources

Time: 3hrs

Max. Marks: 80

Unit I: Either

Que.1: What are non-conventional energy sources? Explain the need of non-conventional energy sources. (16)

OR

Que.2: What are renewable energy sources? Explain its features. (16)

Unit II: Either

Que.3: What is wind energy? Explain different types of wind mills. (16)

OR

Que.4: What are advantages and disadvantages of wind energy? Explain (16)

Unit III: Either

Que.5: What is biomass energy? Explain different types biomass energy sources. (16)

OR

Que.6: Explain in details the applications of biomass energy (16)

Unit IV: Either

Que.7: What is solar energy? Explain in details the solar energy spectrum. (16)

OR

Que.8: What is Photovoltaic effect? Explain in detail the operating principle and construction of photovoltaic cell. (16)

Unit IV: Either

Que.9: Explain Principle of solar collector. Write constructions of different solar collector plates. (16)

OR

Que.10: Explain in details the solar water heating system and solar cooker. (16)

Application Form:

VIDYA BHARATI MAHAVIDYALAYA, AMRAVATI

C. K. Naidu Road, Camp, Amravati - 444 602.

(Affiliated to S.G.B. Amravati University)

APPLICATION FORM (Sr.COLLEGE)

FOR OFFICE USE ONLY	
1. Admitted to class	
2. Date of Admission	
3. Student ID	
4. Category	
5. Fees Paid	
6. Receipt No.	

Affix Passport Size Photograph

(Tick (✓) wherever Applicable)

1. Name of the Student (CAPITAL) Student - ID Applicable to the students who studied last year in this college. Take this number from college fee receipt of Previous Year Sex M F

First Name	Father's Name	Surname

2. Adhar Card No.

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3. Name of Father / Guardian

4. Name of Mother

5. Local Address

PIN		Contact No.
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6. Parmanent Address

	PIN
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Contact No.:

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 Email:

7. Religion Caste

Domecile (Resident of the state/ country):.....

Category SC ST DT NT1 NT2 NT3 OBC SBC OPEN

8. Date of Birth

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9. Details of Last Examination

	S/W-			
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Last Exam.	Year of Passing	Marks Obtained	Total Marks	Percentage
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Roll No. Enrolment No.

Result Pass ATKT Fail

School / College / Board / University last attended

School / College	Board / University	State

10. Class to be admitted to Group

Faculty SCI COM. ARTS SOC. SCI. HOME SCI. (For B.Sc./B.A. Students)

Subjects to be Offered

Compulsory	1.....	2.....	3.....	4.....
Optional	1.....	2.....	3.....	4.....
	5.....	6.....	7.....	8.....

11. Parents' Annual Income

12. Occupation

13. Concession availed last year

EBC	PTC	GLB	GC	FS	EX	SR	GOI	OBC	<input type="text"/>
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DECLARATION

1. The information given above is true to the best of my knowledge. I have carefully read **all the rules*** and regulations of the college mentioned in the Prospectus. I further undertake to fully abide by them.

Date :

Signature of Applicant

2. The information given above is correct. The application has been made with my knowledge and consent. I have carefully read all the rules and regulations of the college mentioned in the Prospectus. I further undertake that I shall be fully responsible for his/her behaviour, regularity in attendance and payment of fees.

Date :

Signature of Father / Guardian

Tick (√) the following necessary Documents attached herewith.

- Mark-sheet
- Leaving/ Transfer Certificate (TC)
- Domicile Certificate
- Adhar Card
- Character Certificate
- Caste Certificate (For Reserved Categories)
- Medical Certificate (for Physically Challenged Students)
- Migration Certificate (Applicants other than Maharashtra State Board or S. G. B. A. U.)
- Equivalence Certificate (Applicants other than Maharashtra State Board or S. G. B. A. U.)
- Latest Passport Sized Photograph

N. B. – Original documents will have to produce at the time of admission.

Note :1. 75% Attendance is compulsory.

2. Dress code be followed strictly.

3. No compensation will be paid in case a vehicle is lost / stolen from the college premises.
