

**Programme Project Report (PPR)**  
**for**  
**Distance Learning Programme under School of Distance Education**

**Certificate in Climate Change and Environmental Management  
(CCCEM)**

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*Academic support by*  
**Advanced Centre Of Environmental Studies And Sustainable Development  
(ACCESSD)**

**Mahatma Gandhi University**

**Kottayam, Kerala**

# **Certificate in Climate Change and Environmental Management**

(Distance Learning Programme - Certificate Programme)

## **Programme Project Report**

Mahatma Gandhi University started the School of Distance Education in 1989 with the vision of providing the opportunity for quality education to all realms of society. Since the beginning, thousands of students have availed themselves of this opportunity for higher education to a great extent throughout Kerala. Many students outside the State have also benefited from this. But after the new directions of the UGC in 2014, the University had stopped all the Off-Campus Centres of the School of Distance Education both inside and outside the State.

Now it is the new endeavour of the School to revamp its functioning by offering different types of Diploma and Certificate programmes very relevant to contemporary society, in addition to the conventional Graduate and Post Graduate programmes. This is being done with the academic and infrastructural support of the eminent Schools and Interdisciplinary Interuniversity Centres of the University. All these Schools/ Centres have already conducted similar Programmes or Post Graduate Programmes in the same area. This Certificate Programme has been designed by the Advanced Centre of Environmental Studies and Sustainable Development (ACESSD) and is to be conducted by the School of Distance Education with the academic support of the Centre.

The Advanced Centre of Environmental Studies and Sustainable Development (ACESSD) stands for interdisciplinary research which involves the generation and integration of knowledge aiming at evolving sustainable development strategies. The Centre has established advanced facilities for interdisciplinary research in order to address emerging environmental issues. It fosters linkages with National and International institutions for collaborative academic and research activities. The Centre is actively engaged in extension activities that aim at capacity building and knowledge sharing for local bodies, NGOs, academic institutions and the general public incorporating environmental awareness and best practices. It promotes sustainable development strategies linking advanced level knowledge with traditional environmental wisdom and practices.

**a) Programme's mission & Objectives :**

The Certificate Programme aims to provide basic knowledge on climate change a phenomenon most relevant to our times. Knowledge on the science of climate change, its impact and mitigation would give a better understanding of the problem and the possible management measures to be evolved. All management strategies primarily focus on the conservation of natural resources that are under threat in the changing scenario of climate change. As human induced factors play a prominent role in the production of green house gases and subsequent climate change, there is a growing need for imparting awareness to all sections of the society.

**b) Relevance of the programme with HEI's Mission Goals :**

The programme in the Open and Distance Learning Mode is an effective way of spreading the information on the challenging problem, the climate change and the management measures. The primary role of higher education institutions is to generate and disseminate the knowledge to the benefit of mankind, hence the programme is of high contemporary relevance.

**c) Nature of prospective target group of learners:**

Students from various streams can join for the programme. Thus the prospective target group of learners include undergraduates, postgraduates, researchers and the general public who are desirous of studying such a programme.

**d) Appropriateness of programme to be conducted in Open and Distance Learning mode to acquire specific skills and competence:**

Climate change, though studied under science discipline is essentially interdisciplinary as its impacts cross its boundaries to other disciplines. So a general knowledge about the phenomenon will help the learners to develop awareness and the appropriate skills for mitigating the impact of climate change in order to evolve sustainable life patterns and development strategies. There is now an emerging trend in linking climate change to human activities and hence the relevance of the programme.

**e) Instructional design:**

The programme is of six months duration comprises four courses with a total of 16 credits. There are adequate contact classes and the assessment involves both internal as well as external components. Each student has to submit a report based case study or project.

Duration-6 months							
Course Code	Course Type	Course Name	Contact Class Hours	Credits	Internal Marks	External Marks	Total Marks
DE-AC-5	Core course	Science of Climate change	12	4	20	80	100
DE-AC-6	Core course	Climate change adaptations and environment management for mitigation	12	4	20	80	100
DE-AC-7	Core course	Climate change policy and regulation	12	4	20	80	100
DE-AC-8	Case study/ Project work and Report	Case study/ Project work and Report	12	4		100	100
<b>Total</b>					<b>16</b>		<b>400</b>

**f) Procedure for admission, curriculum transaction and evaluation:**

Admission to the programme will be done by the University through a common procedure for all the programmes under the School of Distance Education. A pass at the Plus Two level is the minimum eligibility criterion for admission. Candidates (undergraduates, graduates, and postgraduates) are eligible for admission irrespective of age. The fee structure will be decided by the University. The study materials will be delivered through online and print formats. The School will prepare an academic calendar/activity planner that will be circulated among all the learners at the time of admission itself. The academic calendar will include all the significant activities, important dates, schedule of submission of assignments, schedule of contact classes, schedule of examinations, etc.

Evaluation of the courses shall be done by the faculty themselves on the basis of internal assessment and end semester examinations. 20% of the marks will be decided by the internal evaluations and the remaining 80% by the end semester examinations which will be conducted by the University. The performance of a student in each course will be evaluated in terms of percentage of marks obtained with a provision for its conversion to grade points.

Each student shall be required to do one Assignment/Book Review/Debate/Seminar/ Presentation of the case study for each course.

Assignments/Book Review after valuation shall be returned to the students. The teacher shall define the expected quality of the above in terms of structure, content, presentation and the like, and inform the students of the same.

**Grading System** will be followed for the evaluation on a ten point scale. The details of the grading system are given in the following Table.

**Percentage Equivalence of Grade:**

Range of % of Marks	Grade Letter	Performance	Grade Point
95 - ≤ 100	O	Outstanding	10
85 - < 95	A plus	Excellent	9
75 - < 85	A only	Very Good	8
65 - < 75	B plus	Good	7
55 - < 65	B only	Above Average	6
45 - < 55	C	Average	5
40 - < 45	P	Pass	4
< 40	F	Fail	0
Absent	Ab	Absent	0

‘P’ grade is required for a minimum pass in a course. The minimum GPA required for a pass in the Certificate programme is 4.

**Calculation of Grade Point Average (GPA) :**

**Credit Points for the Course** = (No. of Credits assigned for the course x Grade Point secured for that course).

**GPA** indicates the performance of a student in the programme. GPA is based on the total **credit points** earned by a student in all the courses divided by the total number of credits assigned to the courses required in the programme.

Note: GPA is computed only if the candidate passes in all the required courses (gets a minimum required grade for a pass in all the required courses as per the curriculum).

$$\text{GPA} = \frac{\text{Total credit points earned by the student from all the required courses of the programme}}{\text{Total credits of all courses required in the programme}}$$

This formula shall be printed on the Grade Card issued to the student with a note that it could be used to convert the grades into mark-percentages. (The details of the grading system as indicated above shall also be printed on the Grade Card).

### Conversion of GPA to Grade

GPA	Grade
10	O
9.0 - < 10	A plus
8.0 - < 9	A only
7.0 - < 8	B plus
6.0 - < 7	B only
5.0 - < 6	C
4.0 - < 5	P
< 4	F
Absent	Ab

### Conversion of GPA to percentage

$$\text{Equivalent Percentage} = (\text{GPA obtained}) \times 10$$

#### g) Requirement of the laboratory support and library resources:

The library and infrastructure support of the Centre will be extended to learners as per requirement.

Mahatma Gandhi University Library and Information System consists of University Library, libraries of the Schools and Libraries of the 4 study centres. The University Library was established in 1989. The University Library which is situated on the main campus and provides a variety of facilities and has a user-friendly environment. These include individual work spaces, room for group study and teaching, audio-visual access and online information retrieval system. The building of the University Library is 2000 sq.m in area and consists of the cellar, the ground floor and the first floor.

Academic as well as public users are given the facility to use the library. Special category membership is provided to journalists. The library provides service from 8 am to 8 pm in three shift timings for its staff. The library functions on an average of 345 days in a year. Reading space is provided on all the three floors housing the various sections of the library. The library provides reading facility to visually impaired users too. For this, an electronic lab custom made for visually and physically challenged users has been set up during 2016. The libraries of teaching departments are open during working hours of the Schools.

The University Library has a Library Advisory Committee. It is an 18 member committee with the Vice-Chancellor as Chairman and University Librarian as Convener.

The library has a collection of 59,000 books, 232 journals, 2,135 Ph.D. theses and has access to 15000+ e-journals under E-Shodh Sindhu. The activities of the Library are comprehensively automated using open source library management software KOHA.

OPAC, Journal Article Index, Bi-monthly Bibliography compilation and Literature Search Service are also available

The library is a member of the INFLIBNET Centre, Ahmedabad as well as & DELNET (Developing Library Network). As a member of these networks, the library provides access to the resources of other major libraries in the country. In addition to the access to UGC INFONET consortium, it has access to major online databases, such as EBSCO, ProQuest dissertations and theses, Oxford Scholarship Online, IEEE All Society Periodicals Package etc. Mahatma Gandhi University had won the State IT Award during the year 2009 in the e-learning category for its online thesis digital library. The various department libraries too have a good collection of subject specific books and journals.

<b>A. MAHATMA GANDHI UNIVERSITY LIBRARY</b>	
<b>Category</b>	<b>No.</b>
Books	59000
Journals	232
Bound Journals	7500
Ph.D Theses	2135
E-Journals (in UGC-Infonet, renamed as E-ShodhSindhu)	15000
Online databases (in UGC Infonet)	11
Online Archives subscribed	185 Titles
Online databases subscribed	4
E-books	7338
DVDs: Educational Videos	293

<b>B</b>	<b>Name of School/Centre</b>	<b>Total No. of books</b>
	Advanced Centre for Environmental Studies and Sustainable Development	393

**h) Cost estimate of the programme and the provisions:**

Budget estimate (for 200 students)

S.No.	Item	Amount (Rs. in Lakh)
1.	Manpower	3
2.	Study material	2.5
3.	Laboratory	1
4.	Internal assessment	0.5
5.	End semester examination	1.5
	<b>Total</b>	<b>8.5</b>

**Total Programme fee: Rs.9000/-**

**i) Quality assurance mechanism and expected programme outcomes:**

The quality of the programme will be ensured through strict monitoring by an executive committee that includes the Co-ordinator of the programme, subject experts, Director, School of Distance Education and Head of the Advanced Centre for Environmental Studies and Sustainable Development. The Co-ordinator of the programme shall ensure regular student feedback of courses, teachers and the programme in the prescribed format towards the end of the semester and the same shall be analysed to draw conclusions for effecting improvement. Periodical review meetings on the programme's efficacy will be held, in which the remarks of teachers on curriculum, syllabi and methods of teaching and evaluation will be given due importance. Moreover, the progress and the quality of the programme will be monitored by the Internal Quality Assurance Cell of the University from the outcome and feedback of the learners as well as the proper documentation maintained in the Centre.

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# Syllabus

## Certificate in Climate Change and Environmental Management

### Course 1 : Science of Climate change

#### *Unit 1. Introduction to climate change*

**Basics:** Earth's climate system, Climate & weather, green house gases, green house effect, warming potential, carbon cycling, carbon sequestration,

#### *Unit 2. Causes of climate change:*

Natural and anthropogenic, radiative forcing, solar irradiance, aerosols, water vapour and clouds, volcanic eruptions, GHG emission from industries and transport, gross and net emissions from agriculture, forestry and other land use.

#### *Unit 3. Impacts of climate change*

On physical systems (Glaciers, snow, ice and permafrost, rivers, lakes, floods and drought, coastal erosion, sea level effects, rainfall patterns, wind patterns and effects) biological systems (terrestrial ecosystems, aquatic ecosystems), Human and managed systems (food security and Food production, livelihood, poverty, health and economics)

### Course 2 : Climate change adaptations and environment management for mitigation

#### **Unit 1. Climate change adaptations**

Social, ecological assets and infrastructure development, technological process optimization, institutional educational and behavioral change or reinforcement, indigenous knowledge and gender issues in adaptations, financial services including risk transfer, information systems to support early warning and proactive planning.

#### **Unit 2. Environmental management and Climate change mitigation**

Natural resource management – water, soil, energy, forest, etc. Sustainable agricultural practices – emerging trends, shift in agricultural practices, crop rotation. Other Land use management – soil conservation, waste management. Urban management- housing, built-in structures, reduction in energy consumption- green technology innovations, Afforestation, decarbonising energy production, use of clean energy and enhancing the efficiency in industries, transport and building, carbon capture and storage, clean develop mechanisms, low carbon economy, sustainable lifestyle changes.

### **Course 3 : Climate change policies and regulations**

**Unit 1. Climate change institutions and governance** – UNFCCC – Conference of Parties (COP), IPCC, Intended nationally determined contributions, Funding Streams – green climate fund, forest carbon partnership facility, global environment facility, adaptation fund, bilateral and multilateral funds, official assistance fund, voluntary compliance markets.

#### **Unit 2. Climate change regulations**

International Climate conventions and Agreement, recent negotiations and development, policy approaches for adaptation and mitigation, technology and finance, national communications and efforts, Biennial Update reports, carbon credit, main issues and negotiation streams, politics and policy, towards a post 2020 regime.

### **Course 4 : case study/ project work and Report**

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