

**INSTITUTE OF GLOBAL WARMING & ECOLOGICAL  
STUDIES (IGWES)**

***Introduces***

**Post Graduate Diploma in Climate Change  
Mitigation & Adaptation**

**Advanced Post Graduate Certificate in Climate  
Change Economics**

**&**

**Post Graduate Certificate in Climate Change &  
Bioenergy**



**Institute of Global Warming & Ecological Studies  
Block-D, II Floor, Amity University Campus  
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**Post Graduate Diploma in Climate Change Mitigation and Adaptation  
(PGD-CCMA)  
Advanced Post Graduate Certificate in Climate Change Economics  
(APGC-CCE) and  
Post Graduate Certificate in Climate Change and Bioenergy  
(PGC-CCBE)**

**Programme**

The Post Graduate Diploma & Certificate programmes are aimed at both post graduates wishing to specialize in climate change and professionals desirous of extending their knowledge and expertise for a career in climate change.

The programmes shall have an interdisciplinary approach, reflecting the integration of skills and knowledge in the discipline of climate change. These will be specialized programmes, having both teaching and research components. Diploma course will consist of three modules of three, four and two months respectively. Those who pursue the module - 1 shall be awarded PG Certificate in Climate Change and Bioenergy and the students pursuing the module - 2 will be awarded the Advanced PG Certificate in Climate Change Economics. The students pursuing the entire three modules either in continuation or with breaks in between shall be awarded PG Diploma in Climate Mitigation & Adaptations.

**The basic goals and objectives of these programmes are:**

**A) PGD-CCMA**

1. To enhance the understanding of global warming and management of climate change through mitigative and adaptive measures
2. To train students in the emerging trends in vulnerability due to climate change
3. To educate the students to the UNFCCC, IPCC, Kyoto Protocol, national and international policies, laws & regulations applicable to climate change
4. To enhance the understanding of students on environmental economics, economic costs and opportunities in mitigation, CDM (Clean Development Mechanism), JI (Joint Implementation) and VCM (Voluntary Carbon Market)
5. To train students in the preparation of PDD (Project Design Document) for CDM/JI/ VCM
6. To enhance the understanding of students on bio fuel, energy economics and socio-political and biodiversity issues of climate change

## **B) PGC-CCB**

1. To enhance the understanding of the science of climate change
2. To train students in the emerging trends in adaptation and vulnerability assessment, due to climate change
3. To enhance the understanding of students on bioenergy, energy security, economic opportunities and challenge of bioenergy, bioenergy as mitigative option, technological requirement in its growth and sustainability issues
4. To enhance the understanding of students on ecology and biodiversity
5. To educate students about various laws and policies related to climate change

## **C) APGC-CCE**

1. To enhance the understanding of global warming and management of climate change through mitigative measures
2. To educate the students to the UNFCCC, IPCC, Kyoto Protocol and international/national policies, laws & regulations applicable to climate change
3. To enhance the understanding of students on environmental economics, economic costs and opportunities in mitigation, CDM (Clean Development Mechanism), JI(Joint Implementation) and VCM (Voluntary Carbon Market)
4. To train students in the preparation of PDD (Project Design Document) for CDM/JI/ VCM

## **Teaching and Assessment**

These programmes shall include teaching, learning and assessment with considerable emphasis on student-centered learning. Students shall have to attend lectures for four days per week, with the remainder of the time being spent on seminar work and self study. Students will also get opportunities to interact with national and international experts on the subject.

The programmes will include project work, oral exposition, seminars, essays, case studies, demonstrations, field visits, reports, dissertation along with usual mid-term and session end exams. Monitoring of students' progress will be continuous and thorough, with regular communication between students and teaching staff.

The courses will comprise of modules on fundamental issues as well as applied research on climate change. Apart from the end term examinations, student's performance will also be assessed on the basis of the class participation, assignments, group discussion, projects and mid term tests. A minimum of 75% attendance (for PGD-CCMA 75% attendance in each semester) is essential to appear in the end-term examinations.

## Entry requirements

The minimum requirement for admission to the Programmes is:

Bachelor degree in Engineering/ Agriculture /Veterinary Sciences/Law or Masters in Biological Sciences/ Physical Sciences/ Forestry/ Economics/ Statistics/ Geography/Business Administration/Anthropology/Political Science/ Public Administration/ Commerce/ Sociology etc.

Applicants from outside India must possess an equivalent qualification from an institution of repute. Applicants who do not possess the normal entry requirements, but can demonstrate substantial work experience in an appropriate area, can be considered for entry to the course. Candidates who expect to complete the final part of their degree examinations by July 31, 2007 may also apply for provisional admission.

## Selection Process:

Students will be selected by applications and references initially, followed by an interview if considered necessary.

## Duration of the programmes:

The duration of the PGD-CCMA will be of nine months (consisting seven month class base work and two month internship) whereas the duration of PGC-CCBE will be of three month and duration of the APGC-CCE will be of four month.

## Fee Structure:

### A) PGD-CCMA

The total fee for the **PGD-CCMA** programme is **Rs. 70,000/-** for Students from India and SAARC countries and **\$ 3350** for students from Non-SAARC countries

	Fees for Students from India and SAARC countries	Fees for students from Non-SAARC countries
Admission Fee	- Rs. 10,000.00	\$ 500
Tuition Fee	- Rs. 35,000.00	\$ 1600
Exam Fees	- Rs. 5,000.00	\$ 250
Library Fees	- Rs. 5,000.00	\$ 250
Course Material Fee	- Rs. 10,000.00	\$ 500
Computer Lab Fees	- Rs. 2,000.00	\$ 100
Caution Money (Refundable)	- Rs. 2,000.00	\$ 100
Student Welfare Fees	- Rs. 1,000.00	\$ 50
<b>TOTAL</b>	<b>- Rs. 70,000.00</b>	<b>\$ 3350</b>

## B) PGC-CC&BE

The total fee for the **PGC-CCB** programme is **Rs. 40,000/-** for Students from India and SAARC countries and **\$ 1950** for students from Non-SAARC countries.

	Fees for Students from India and SAARC countries	Fees for students from Non-SAARC countries
Admission Fee	- Rs. 50,000.00	\$ 250
Tuition Fee	- Rs. 15,000.00	\$ 700
Exam Fees	- Rs. 3,000.00	\$ 150
Library Fees	- Rs. 3,000.00	\$ 150
Course Material Fee	- Rs. 10,000.00	\$ 500
Computer Lab Fees	- Rs. 2,000.00	\$ 100
Caution Money (Refundable)	- Rs. 1,000.00	\$ 50
Student Welfare Fees	- Rs. 1,000.00	\$ 50
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TOTAL	- Rs. 40,000.00	\$ 1950

## C) APGC-CCE

The total fee for the **APGC-CCE** programme is **Rs. 50,000/-** for Students from India and SAARC countries and **\$ 2450** for students from Non-SAARC countries.

	Fees for Students from India and SAARC countries	Fees for students from Non-SAARC countries
Admission Fee	- Rs. 50,000.00	\$ 250
Tuition Fee	- Rs. 25,000.00	\$ 1200
Exam Fees	- Rs. 3,000.00	\$ 150
Library Fees	- Rs. 3,000.00	\$ 150
Course Material Fee	- Rs. 10,000.00	\$ 500
Computer Lab Fees	- Rs. 2,000.00	\$ 100
Caution Money (Refundable)	- Rs. 1,000.00	\$ 50
Student Welfare Fees	- Rs. 1,000.00	\$ 50
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TOTAL	- Rs. 50,000.00	\$ 2450

### Course Strategy:

The courses will be a full time programmes with three distinct interrelated components: (a) classroom, (b) dissertation and (c) internship. Flexibility to complete the internship in their own organization will be provided to working professionals. The classroom segment will enable students to understand the theories and concepts of the entire range of climate change issues while internship will expose them to its practical complexities. The programme structure will thus provide linkages between theoretical concepts and practical experiences.

### Placement:

IGWES shall arrange for campus interviews with the leading international research and commercial organizations at the end of diploma course.

**Accommodation:**

No accommodation is available inside the campus. However, IGWES will facilitate paying guest/ shared rented accommodations for the students, on request.

**Important Dates:**

Last date for submission of application form: **July 30, 2007**

Date for admission: **August 10, 2007**

Orientation programme: **August 31, 2007 (for all courses)**

Commencement of class: **September 5, 2007 (for PGD-CCMA & PGC-CCB)**

Commencement of class: **December 3, 2007(for APGC -CCE)**

**How to apply:**

Applicants may download the application form & prospectus from the IGWES's website and can e-mail to [igwesindia@gmail.com](mailto:igwesindia@gmail.com). Applicant can also send complete application form to the institute by post.

**Human resource base:**

Institute of Global Warming & Ecological Studies is guided with the following lead team:

**Mr J C Kala**

Member, National Environment Appellate Authority of India, New Delhi and Hony Director General, IGWES

**Dr M K Muthoo**

President, Roman Forum, Rome and former Director Forest Policy, FAO and Member, Board of Management of IGWES

**Prof Paavo Pelkonen**

Chairman, Biosciences Group Finnish National Academy of Sciences, Helsinki, and Vice Dean, Faculty of Forestry, University of Joensuu, and Member Board of Management of IGWES

**Prof Hou Yuanzhou**

Research Professor and former Director, Institute of Forest Policy, Chinese Academy of Forestry, Beijing, and Member Board of Management of IGWES

**Dr Liisa Tahavainen** Director, Cross Border University, Joensuu Finland, and Member Board of Management of IGWES

**Dr Wu Shuirong**

Associate Professor, Institute of Forest Policy, Chinese Academy of Forestry, Beijing, and Member, Board of Management of IGWES

**Promode Kant, IFS**

Additional Principal Chief Conservator of Forests and Member, Board of Management and Director, IGWES

***IGWES faculty comprises of the following:***

**Promode Kant IFS, Director, IGWES**

Promode Kant is an Additional Principal Chief Conservator in the Indian Forest Service and is under deputation from the Government of India to set up this institute of advanced learning in the field of global warming. He specializes in the role of Land Use, Land-use Change and Forestry (LULUCF) in climate change mitigation, particularly in carbon sequestration and storage in vegetation and mitigation through replacement of fossil fuels by biofuels and has a number of publications to his credit. His other fields of specialization are sustainable management of forests and equity issues in tribal owned forests, economic assessment of ecological and environmental consequences of major developmental works and wildlife management. He has taught in the Indira Gandhi National Forest Academy as a visiting Professor and is presently a Visiting Professor in the Department of Forestry in the University of Joensuu in Finland where he teaches climate change related issues in forestry and the international conservation laws. He was designated UNFCCC expert on afforestation/reforestation during 2004-2005.

### **Dr. M. A. Khalid, Deputy Director & Associate Professor**

Dr. Khalid, a doctorate in Zoology (AMU, Aligarh) and PG Diploma in Remote Sensing (IIRS, Dehradun), is a trained ecologist with more than 16 years of professional/academic experience as wildlife biologist (WII, Dehradun), Protected Area Ecologist (World Bank's IEDP-GEF Project in West Bengal) and Biodiversity expert in The Energy and Resources Institute (TERI). His areas of interest are Climate Change, wildlife/wetland biodiversity, coastal zone/freshwater fisheries, Remote Sensing/GIS. He has contributed in India's Natcom project for field studies in Uttarkashi area. He was member of Gangetic Plain core group of National Biodiversity Strategy and Action Plan (NBSAP) and State level steering committee of NBSAP Uttaranchal state. He was training development expert in SAPROF team of TERI in JBIC project in Haryana. He was member of Academic Council of TERI University for 2004-05.

### **Dr Binod Kumar Das, Assistant Professor**

Dr Das is a Social Scientist (Ph.D, JNU, New Delhi). He has thirteen years of experience working with UN organizations and national level NGOs. He worked with Centre for Media Studies, New Delhi as Project Director from 1994-1999. During CMS tenure, he authored many monitoring and evaluation reports of Government of India. Dr Das worked with UNICEF Bihar as Social Mobilisation Consultant and afterwards moved to Kolkata UNICEF as Child Health Consultant. He also supported Agramee (a national level NGO) as a Socio-Economic Analyst of Watershed Programme supported by German Agro Action. The socio economic impacts of climate change and adaptation and mitigation to climate change in South Asia are his current areas of research.

### **Keshav C. Das, Assistant Professor**

Keshav Das is a Master in Rural Management, from North Eastern Hill University, Shillong and is presently, pursuing Ph. D on Strategic Management and Policy Formulation for infrastructure development in Assam under Gauhati University. He was also a Faculty in Assam Institute of Management (AIM) and taught on Natural Resource Management, International Business in Agriculture, Non-Corporate Management and Entrepreneurship. He was associated with several research projects such as Rural Infrastructure Development Project (World Bank supported), Market Study of Milk Consumption in Assam, International Livestock Research Institute (ILRI) His present research interests are socio-economic aspects of climate change, climate change induced migration in South East Asia and application of Swarm Intelligence.

### **Debojyoti Chakraborty, Lecturer**

Debojyoti Chakraborty is M Sc. in Environment Management from Forest Research Institute, Dehradun.

### **Swati Singh, Research Associate**

Swati Singh is a post graduate in Natural Resources Management from TERI University, New Delhi. Her area of interest includes climate change, biofuels, ecology and biodiversity. She was associated with Energy and Policy Division, TERI as intern and during that tenure she conducted socio-economic study in Kaladera village, in Rajasthan for Coca Cola, India. She was also associated with Biomass Energy Technology Application (BETA) group of TERI, during this tenure she prepared biodiesel from Mahua oil and subsequently optimized the process.



## **About IGWES:**

IGWES is an international institute the idea of which was conceived in Beijing in March 2004 and nurtured in Rome, Joensuu and Dehradun, by scholars from India, Finland and China. The Institute aims at enhancing the understanding of global warming, its causes, possible mitigation options and the technical and social adaptation that would be required to deal with the consequences of warming that is unavoidable. Research, teaching, training, consultancy, valuation and arbitration services related to climate change and ecological issues are the main activities of IGWES. The thematic focus of institute is on climate change negotiations beyond Kyoto protocol, effect of climate change on bio diversity, on mountain ecosystems, on the coastal zone and mangroves, the vulnerability of food crops and the mitigation opportunities that the biofuels offer. For further information on the institute please visit our website [www.amity.edu/igwes](http://www.amity.edu/igwes) .

## **Course Outline for the programme**

### **Term-I (Total Credit 20)**

**1. Introduction to Climate Change (3 Credits)-** This module forms a broad introduction to climate change by covering important aspects of the nature, science and the drivers of climate change. The students will be exposed to greenhouse gas, radiative forcing, feedback mechanism, global warming potentials, carbon emissions from various natural & anthropogenic sources, methane from wetlands, agriculture & animal wastes, earth energy balance etc. The module will also cover international 'political and scientific attempts' at understanding the issue and the arguments from the climate skeptics.

**2. Climate Change Vulnerability (3 Credits)-** This module covers potential impacts of climate change on water resources, agriculture, forest, natural ecosystems, infrastructure & energy sector, coastal zones, human habitats (rural & urban) and health. The module will also highlight the approaches and tools of assessment of climate change, developing and applying scenarios.

**3. Climate Change Adaptation (2 Credits) -** This module will cover available adaptation options for terrestrial, fresh water & ocean ecosystem and their confluences. Besides, the module will cover adaptation options available for human systems like human health, human settlement, agriculture and food security and energy industry under various climate change scenarios.

**4. Climate Change, Policy and Law (3 Credits) -** This module will introduce international & national legislative framework in the field of climate change agreements, UNFCCC and Kyoto Protocol, subsidiary scientific & implementation bodies, Kyoto mechanisms, Clean Development Mechanism (CDM) & Joint Implementation (JI), decisions of the COP and COP/MOP, DNA, CDM-EB and all Subsidiary Bodies.

**5. Climate Change, Ecology and Biodiversity (2 Credits) -** This module will focus on the ecological aspects of climate change, ecosystem & their goods & services. Special focus will be on Himalayan Ecosystem, mangroves, coral reefs, wetlands, forest & wildlife ecosystem and biodiversity hotspots, fragile ecosystems and the effect of climate change on them.

**6. Bio-Energy ( 4 Credits)-** The module covers the entire range of technological, environmental, economic and social issues in biofuels, its current status and future prospects, its climate change mitigation potential under CDM/JI and voluntary carbon markets, energy security and sustainable development, world trade and bioenergy, constraints in development of bioenergy, bioenergy as a competing land use and food security, policy issues in bioenergy development, evolution of bioenergy policies in EU, USA, India and China etc, R&D in bioenergy, pollution and bioenergy, etc.

**7. Research Methods (3 Credits) -** This module covers the methodological steps involved in the design, data collection, preparation and analysis, detection of anthropogenic changes including undertaking a critical literature review and testing of multiple hypotheses. Besides, the module will cover some of the statistical bases behind the understanding of climate change.

### **Term -II (Total Credit 20)**

**1. Climate Mitigation- I (2 Credits)-** This module will cover GHG emission trends, current climate change mitigation policies, emission scenarios of IPCC-SRES, mitigation potential and analytical approaches, bottom up and top-down approaches, overview of mitigation technologies for transport, infrastructure, industry, agriculture, waste, ecology, energy sectors and non-technological mitigation measures. Use of bio-energy, biofuel, renewable energy, geo-engineering etc.

**2. Climate Mitigation-II (3 Credits)-** The paper will include land use, land use change and forestry, land based and activity based carbon accounting, Clean Development Mechanisms (CDM) & Joint Implementation (JI), baseline approaches, additionality, leakages, baseline methodology, monitoring methodology, GPG-LULUCF, project Idea Note (PIN), Project Design Document (PDD) –application of baseline methodology & plan, estimation of the net GHG removal by sinks, environment impacts of CDM project activities, socio-economic impact of CDM/JI project activities, stakeholder analysis, role of DOE & DNA in CDM/JI, Accredited Independent Entities under JI, review of CDM/JI projects, emission reduction units etc.

**3. Voluntary Carbon Market (1 Credit) -** The module will cover voluntary carbon market (VCM) trends & policies. The module will also highlight the roles of corporation and individuals in GHG reductions. It will examine the functions of the Chicago Climate Exchange (CCX), New South Wales Market (NSW), and World Bank Carbon Fund etc.

**4. Carbon Market Assessment (2 Credits)-** The module will cover the estimation of CER, VER, understanding barriers & opportunities in mitigation, trade & environment issues in the carbon market, carbon market structure, demand & supply, element of costing, ancillary & co-benefit analysis, carbon market failures & external costs, cost implication of different scenario approaches, cost implication of GHG emission options and carbon sinks, uncertainty analysis.

**5. Climate Modelling (2 Credits)-** This module will introduce the students to the theoretical concepts of modeling and an overview of general circulation, equilibrium & dynamic modeling utilized for the projections of global warming under various emission scenarios and its effect on the natural & human ecosystems.

**6. Environmental Economics & Accounting (3 Credits)** - This module will provide a thorough and coherent review and discussion of environmental economics & accounting. It will introduce the students to the fundamentals of environmental economics, markets and efficiency, with focus on various sources of market failure, environmental policy instruments, including regulatory and market-based policy instruments, theory of non-market valuation and methods of valuing environmental costs and benefits through revealed and stated preference approaches, natural resource and environmental economics, including the economics of non-renewable and renewable resource extraction, the economics of pollution control and issues relating to international trade and/ or transboundary pollution.

**7. Political Economy of Climate Change (2 Credits)**- This module will highlight the political economy, social and behavioral dimensions of climate change and focuses on methods to make society and policy makers aware of climate change and take appropriate mitigative and adaptive actions. The module will also cover the contemporary political struggles over this subject in WTO and G-8 etc, global warming induced migration, advocacy coalition and politics of Annexue-I and Non-Annex countries.

**8. Reading group (1Credits)**- - This module will be student-led and explores recent debates in climate change science and policy by discussion of recent selected papers in the discipline with the aim of establishing a better understanding of these recent debates through peer discussion with guidance by academic staff. Assessment will be through oral presentation in seminars with a view to formulating a theoretically-embedded commentary on the paper.

**9. Dissertation (4 Credits)** - The dissertation will comprise research on a topic commensurate with themes in the overall diploma programme. The dissertation nurtures the student's skills in formulating research questions, planning and conducting a research, and analysis and evaluation of results using appropriate techniques. The dissertation should be up to 15,000 words long.



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## APPLICATION FORM FOR ADMISSION TO PGD-CCMA, APGC-CCE and PGC-CCB 2007-2008

### **INSTRUCTIONS:**

While filling up the IGWES Application Form, applicants are requested to note the following:

1. This application is a key part of the admission process. **Fill it carefully and completely.**
2. In all matters relating to admission to the course, the decision of the Institute Authorities will be final and binding on the applicant. No correspondence will be entertained from the applicant regarding his/her non-selection.
3. No mark-sheet and certificates are required to be enclosed. They would be required at the time of interview.
4. The LAST DATE of submission should be strictly adhered to.

### **PLEASE FILL IN CAPITAL LETTERS ONLY**

<b>COURSE OPTED FOR: PGDCCMA / APGC-CCE / PGD-CCB (Please tick)</b>	
1. Name (in capital letter):	Application No: (For office use only)
2. Date of Birth:	
3. Gender:	
4. Sponsor's Name, if any, with address:	
5. Address for correspondence:	6. Permanent address of applicant:
Telephone No.:	Telephone No:
Mob:	Mob:
Email:	Email:

7. EDUCATIONAL QUALIFICATIONS (HSLC/SSC ONWARDS): **Provide complete information about marks for all the years**, attach separate sheet, if necessary. *Applicants whose results have not been declared should give details of marks obtained in the last examination.*

Exam. or equivalent	Institute, Location	Year	Class/Div.	Subjects	% of Marks

8. Distinctions/Awards/Special Achievements/Extra Curricular Activities

9. Work Experience, if any:

10. Referees' name and address

*(Referee is requested to comment in general about the applicant's strength, general education, potential as a researcher and ability to pursue a course on climate change. The reference letter can be directly sent by the referee to IGWES through email ([igwesindia@gmail.com](mailto:igwesindia@gmail.com)) or can be attached along with the application form).*

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11. Please describe in 400 words how this course will be useful for you?

12. Is Paying Guest/Rented accommodation required? Yes/ No

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DECLARATION

I certify that the particulars given above are correct and true to the best of my knowledge. If at any time the above information is found to be false, the Institute will have the liberty to take action as deemed appropriate. I agree to abide by the Rules & Regulations of the Institute. I fully understand that the decision of the Institute about my admission will be final.

Date:

Signature:

Place:

Name in Full:

**LAST DATE OF SUBMISSION: July 30, 2007**

**: Contact Details:**

Institute of Global Warming & Ecological Studies ([www.amity.edu/igwes](http://www.amity.edu/igwes))  
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