

Post Graduate Diploma in Environment Management 2023-24



Prospectus and Syllabus



EPCO Institute of Environmental Studies Environmental Planning and Coordination Organization Department of Environment, Government of MP

Post Graduate Diploma in Environment Management Academic Session: 2023-24

PROSPECTUS

Background

Environmental Planning & Coordination Organization (EPCO), a registered society of Department of Environment, GoMP, is an advisory organization to the State Government on matters related to environment. EPCO is a unique organization in terms of its foresight and the width of its mandate. Ever since its inception in 1981, EPCO has witnessed many developments in the field of environment consisting of international initiatives and agreements, a robust legislative framework and substantial increase in the grassroots movements.

Over the last 43 years EPCO has touched upon virtually every kind of work that is related to the field of environmental planning. It did pioneering work in creation of environmental consciousness and focusing attention on environmental problems of the state by bringing out scientific publications like State of Environment reports, formulation of State Environment Policy.

The human resources and knowledge base of EPCO is one of its biggest strengths. It has also developed a substantive goodwill amongst the members of the Civil Society through its awareness and training programs, conferences, seminars and mass campaigns.

Govt of MP has established a State Knowledge Management Centre on Climate Change (SKMCCC) which aims to develop strong connect between climate science, policy and practitioners. As per the Wetland Rules-2017 a State Wetland Authority has been constituted in EPCO. Similarly State Environmental Impact Assessment Authority (SEIAA) has also been constituted in EPCO.

EPCO has made significant contributions in the field of environmental research and education by carrying out many studies and conducting many training and capacity building programs. It offers a prestigious Indira Gandhi Fellowship for quality research on Environmental Conservation and Management. EPCO also awards HCM fellowship for carrying out PhD on Climate Change issues of Madhya Pradesh.

To capitalize on this knowledge wealth and share it with the stakeholders EPCO Institute of Environmental Studies (EIES) was established in the year 2011 under the aegis of EPCO. EIES conducts a Post Graduate Diploma in Environment Management (PGDEM) which is offered in a distant mode.

The PGDEM course has proved to be of immense value to fresh students and in-service professionals who are employed in industries, analytical & scientific jobs, environment & safety divisions of various industrial houses or in government departments and human resource service providers. PGDEM diploma is awarded by EIES, EPCO, Department of Environment, and Government of Madhya Pradesh.

PGDEM Course Details

- 1. Course Title- 'Post Graduate Diploma in Environment Management'.
- 2. Course Objective-
 - Enhance understanding on Environment, Sustainable Development and Climate Change issues.
 - Inculcate leadership qualities and sense of environmental stewardship
 - Develop a cadre of professionals to effectively contribute in mainstreaming of environmental concerns.
 - Create mass awareness on environmental issues to bring about behavioral and lifestyle change.
- **3.** Eligibility- Graduate in any discipline with 55% marks for general category and 50% marks for reserve category.
- **4.** Upper Age Limit- 45 years as on 31st December 2023. Age and other eligibility relaxation may be considered on merits for deserving candidates by ED EPCO.

5. Fee Details-

- I. Application Fee: Rs. 1000/- (Rs. One Thousand) to be deposited with application form
- II. Course Fee: Rs. 30,000/- (Rs. Thirty Thousand only) for General Category and Rs 18,000/-(Rs. Eighteen Thousand only) for Reserved Category. Fees may be deposited in two installments, 1st at the time of admissions and 2nd installment during middle of the session (exact dates to be communicated in due course of time).
- III. Examination Fee: To be informed in due course of time
- IV. How to deposit Fee: Students may deposit Application form fee, Course Fee and Examination Fee directly in EPCO's Bank account using Net Banking, RTGS/ NEFT details given in this document. Students may also deposit fee through Bank DD to be drawn in favour of ED EPCO.
- V. *Fee Refund:* As per the GoMP GAD's order no 11-2/2012/1-9 dated 22nd March 2012 those students who are employee of MP State Govt Departments, their fees will be refunded by their respective departments upon successful completion of PGDEM course.
- No. of Seats- The number of seats for the session is <u>40</u> which <u>may be increased</u> in case of deserving applicants with due approval of ED, EPCO.
- 7. Course Duration- One Year (12 months).

8. Mode of Admissions & Selection Procedure-

- Submission of Applications: Applications with self-attested copies of testimonials such as marks sheets/ degree/ diploma, work experience certificate and reference letter to be submitted online through EPCO's website (www.epco.mp.gov.in).
- II. In-service applicants will have to enclose <u>Permission Letter</u> from their respective employer. Sponsorship letter may also be attached both by freshers and in-service applicants if their employer or some other organization is sponsoring the applicant.
- III. Short-listing cum Selection Committee: A three (3) member short-listing cum selection committee duly approved by Executive Director, EPCO will examine the applications forms with regard to eligibility criteria, verify testimonials / credentials submitted by the applicant and decide and supervise on the mode of entrance test, if need be.
- IV. Reference letter: Submission of a <u>reference letter</u> which could be from an eminent environmentalist, college Principal, HoD, Professor, Faculty member of college/ HoD of the employee's office or any person of eminence <u>is needed</u>. Besides this, contact details of two persons for reference will also have to be informed by the candidate to get feedback on their behavior/ integrity etc.
- V. Screening Test for Admissions: A screening entrance test (virtual /in person) may be conducted by the above short-listing cum selection committee. This may be followed by

Personal Interviews (which could be online and/or on phone call also). The admission committee will prepare a list of probable candidates who meet all the criteria and then announce an interim selection list along with waitlisted candidates. Final list will be published on EPCO's Website after due approval accorded by ED, EPCO.

9. Mode of Teaching and Assessment-

- I. *Class room sessions:* Will be organized in a blended manner, meaning both in person as well as virtual mode via online platform wherein students will be taught in detail.
- II. **Self-learning:** System of self-study will be used to inculcate reading habits, to enhance understanding and knowledge about the subject.
- III. Field Visits: Field visits are an important mode of learning. Students will be taken to sites where notable work has been done in the field of Climate Change (Mitigation & Adaptation), Sustainable Development, Environment and Renewable Energy, Sustainable Agriculture, Waste Management, Water Conservation etc. but also where environmental degradation is visible will be considered.
- IV. Faculty: Guest faculty will be invited for taking the classes. Competent in-house professionals who have teaching skills and experience, their services would be used in class room knowledge sessions and in other academic activities of EIES.
- V. *Class room teaching time:* Total teaching time will be 125-150 hours of class room periods, spread over in different knowledge sessions to be organized in blended mode during the academic session 2023-24.

10. Examination Eligibility and Process-

Following examination process in academic session: 2023-24 to be adopted.

- I. At the end of the PGDEM session a Term End Exam (TEE), online/offline depending on the circumstances will be conducted.
- II. TEE may include MCQs, Short answer and Descriptive Questions.
- III. In order to be eligible for award of diploma, a student must fulfil all the elements of assessment (e.g. term end exams, assignment, project work / dissertation and group work well in time.
- IV. Dissertation/project work may include process documentation of any ongoing or completed project, take up a short research study, carry out environmental / social impact assessment study, or formulate a new small pilot project on environmental issues. These can be done with guide or any other subject experts who can actually guide. EIES may provide advice and help in identifying guides.
- V. For appearing in Term End Exam, 40% attendance in contact classes (including virtual or in person) is must.
 - If the attendance is less than 40%, a committee will review the case to take decision to allow the candidate to appear in the exam. ED, EPCO will take a final decision.
 - There will be 10 marks criteria for attendance which will be included in total assignment marks i.e. 100 marks. The assignment marks' breakdown would be 90 marks for assignment + 10 marks for attendance. The assignment will be evaluated out of 90 marks only.
 - The students having 80% or more attendance (both online/offline attendance will be counted) in the academic session will get 10 marks in their assignment; no marks will be given for attendance to the students having below 80% attendance.
- VI. Depositions of requisite Course fee and Examination Fees on time.

11. Preparation of Result and Diploma Certificates-

- I. Result will be prepared after assessment of theory papers, dissertation/project work, assignment, compilation and tabulation of marks duly verified and signed by Exam Controller, persons who prepares the result and person who tabulates the result.
- II. Similarly Grade sheet and Diploma certificate (signed by Director General, EPCO & Executive Director, EPCO) will be countersigned by Exam Controller, persons who prepares and person who tabulates.

III. The result will be announced on EPCO's website and will also be informed via email to all the candidates.

12. EPCO's Bank Details

Bank Name	Punjab National Bank
Branch	EPCO Branch
Account Holder Name	EPCO Institute of Environmental studies
Account No.	6310 0011 0000 0028
IFSC	PUNB 0631000

13. Tentative Academic Schedule-

Months	2023				2024							
Activity	JUL	AUG	SEP	ОСТ	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Admissions												
General Introduction online												
Induction Session & field visits												
Self-Study												
Knowledge Session & field visits two week (10 days approx)												
Self-Study												
Contact Class one week												
Project Report Assignment Submission												
Exams & Results												

Note : In view of circumstances and for exceptionally deserving candidates. ED, EPCO reserves the right to relax any of the conditions and/or modify any process mentioned above.



MODULE-I	INTRODUCTION TO ENVIRONMENT, DEVELOPMENT & SDGs
Unit–1	Fundamentals and Concepts of Environment
Unit–2	Sustainable Development concepts, MDGs, SDGs
MODULE-II	NATURAL RESOURCE MANAGEMENT AND ECOSYSTEM (Forest, Water, Air, Wetlands, Biodiversity and Minerals)
Unit–3	Ecosystem-Concepts, Functions and Types
Unit–4	Natural Resource Management
MODULE-III	CLIMATE CHANGE- SCIENCE, ECONOMICS, IMPACTS & ACTIONS
Unit5	Climate Change -Science, Impacts and Economics
Unit 6	Climate Change– Vulnerability, Adaptations, Mitigation, NBS and Circular Economy
MODULE-IV	ENVIRONMENT RESEARCH, POLICY, LAWS, PRINCIPLES, CONVENTION and EIA
Unit–7	Environmental Policies, Principles, Doctrines ,Laws and National Legislations on Environmental Protection, Research Methods, Green Audits
Unit–8	EIA-Introduction, concepts, purpose, process and institutional governance
MODULE-V	ENVIRONMENTAL CHALLENGES- POLLUTION CONTROL, WASTE MANAGEMENT AND DISASTER MANAGEMENT
Unit – 9	Environmental Challenges-Types of Environmental Concepts, Legal Social system, Pollution and Waste Management
Unit – 10	Disaster Management and Risk Assessment

S. No.	Syllabus
MODULE-I	INTRODUCTION TO ENVIRONMENT & DEVELOPMENT SDGs
Unit–1	Fundamentals and Concepts of Environment
1.1	Environment– Introduction and its components–biotic & abiotic
1.2	Atmosphere- Introduction, Layers- its evolution, composition & stratification
1.3	Hydrosphere–Hydrological cycle, Characteristics of lentic and lotic fresh water
	andMarine system
1.4	Lithosphere–Rock formations, soil characteristics and soil biota, type of soil
1.5	Political, economic and environmental concerns
1.6	Environmental values and ethics
1.7	Modern as well as Pristine life style and environment
1.8	Natural History–Details and Definition
1.9	Nature–Earth, Life, Evidence of Life on Earth
1.10	Evolution History–Earliest earth origin and evolution of life
1.11	Geological Activities and Challenges
1.12	Bio-geography-Introduction and Distribution of Space and Time
1.13	Biogeography Realms
1.14	Types of Biogeography–Paleo-biogeography, Historical, Ecological,
	Conservation
1.15	Biogeography and Ecosystem–Ecology, Ecosystem, Biomes, Habitat, Macro- Habitat, Micro-Habitat
1.16	Introduction to Environment Management: an interdisciplinary approach
1.17	Significance of environment and its management
1.18	Assessing the status of environment by ecosystem indicators, remote sensing,
	GIS
1.19	Setting the management and conservation priorities
1.20	Environment conservation and management in human- modified world:
_	challenges and measures to meet them: overcoming the obstacles
1.21	Social and political responsibilities for environmental conservation and
	protection-Environmental education, important political and social movements
1.22	Tools for managing the environmental quality
1.23	Restoration of Fauna and Flora
1.24	Biogeography zone of India–Introduction, Methods, Phyto-geography, Zoo-
	geography
1.25	Land Bridge, Corridors, Centre of Origin, Endemic, Vicariance, Dispersal,
1120	Continental, Drift theory
1.26	Exercises/Questions
Unit – 2	Sustainable Development Concepts, MDGs, SDGs
2.1	Sustainability and sustainable development, issues and constraints
2.2	Concepts and strategic actions in sustainable development: Demography
<i>ב.ב</i>	specific, Population and Development pyramids, energy, transport and building
2.3	Criteria and Indicators for sustainable development as per NITI Ayog
2.3	Case studies on Sustainable Development initiatives
2.4	Social Economics of sustainability and sustainable development
2.5	International cooperation for sustainable development & Sustainable
2.0	
0.7	Developmental Goals, Introduction of Green Jobs
2.7 2.8	Environmental concerns in different faith religions and sustainable living
2.0	Assignments and presentation
MODULE- II	NATURAL RESOURCE MANAGEMENT AND ECOSYSTEM
	(Forest, Water, Air, Wetlands, Biodiversity and Minerals)
Unit – 3	Ecosystem- Concept, Functions and Types
3.1	Ecological principles – Biosphere and its organization all levels as
	population,Community and ecosystem
3.2	Concepts of the Habitat and Niche
	lypes of Ecosystems-Terrestrial, Aquatic, Grassland, Arboreal

3.4	Ecological balance and succession- Natural Vs. Man made Environment
3.5	Ecological footprint
3.6	Biodiversity and Protected areas: Definition, classification, species diversity,
010	ecosystem diversity & genetic diversity
3.7	Food chain and food web, Bioaccumulation and bio magnifications
3.8	Ecological pyramids – flow of energy
3.9	Concepts of biomass productivity
3.10	Bio-geo-chemical cycles and sedimentary cycles
3.10	Carbon, Nitrogen and water cycles
3.12	Biotic Relations (relationship among organism)
3.12	Ecological adaptations, Climax, Biomass, Homeostasis
3.13	Natural History–Details and Definition
3.14	
	Nature–Earth, Life, Evidence of Life on Earth
3.16	Evolution History–Earliest earth origin and evolution of life
3.17	Geological Activities and Challenges
3.18	Restoration of Fauna and Flora
3.19	Biogeography zone of India–Introduction ,Methods–GIS Data, Phyto-geography,
3.20	Zoo-geography
3.20	Land Bridge, Corridors, Centre of Origin, Endemic, Vicariance, Dispersal,
2.04	Continental Drift theory, Cladogram.
3.21	Exercises/Questions
Unit – 4	Natural Resource Management
4.1	Air – Earth, atmospheric, weather (El Nino – La Nina), climate, monsoon, winds,
	cyclone
4.2	Land resources- Arable land, forest land, wetland, forest land, waste land,
	deserts
4.3	Water resources-surface water, ground water, snow, ice- caps, methods of
	Quantification
4.4	Food resources– Agri-products, fishery, dairy, meat, egg etc.
4.5	Forests and tree cover- forest classification and products, tree resource outside
	forests, ecosystem services of forest and Agroforestry
4.6	Wildlife – wildlife and its conservation, In-situ and Ex-situ conservation
4.7	Biosphere Reserves, National Parks & Wild life Sanctuaries
4.8	Management and conservation of wild life in India
4.9	Mineral resources–Metallic minerals, non-metallic minerals, coal and oil.
	Orebeneficiation and Mining
4.10	Marine resource – Marine ecology and geology
4.11	Energy resource–Requirement and utilization, energy trend
4.12	Renewable energy: solar energy, wind energy, thermal energy, bio-energy
	(wood, cellulose, biogas, bio-oil), hydalenergy, ocean, thermal, tidal land wave
	energy
4.13	Optimization of resource utilization
4.14	Integrated water resource management
4.15	Water use sectors and water requirement for Environment, Irrigation, Domestic
	and Drinking, Industry, Transport and Aquaculture
4.16	Water footprint
4.17	Watershed development and management
4.18	River valley projects
4.19	Participatory Irrigation Management
4.20	Integrated land use development and management
4.21	Land capability assessment and arable land management
4.22	Sustainable forest development and management
4.23	Human impact on Natural Environment (Climate, Atmosphere, Vegetation,
-	Animal, Soil, Water etc.)
	Impact of human agencies in geomorphology
4.24	
4.24 4.25	Social forestry, urban and farm forestry

4.27	Mined out area development(Rehabilitation and Eco restoration)
4.28	Desert area development
4.29	Exercises/Questions
MODULE-III	CLIMATE CHANGE- SCIENCE, IMPACTS, ACTIONS& ECONOMICS
Unit -5	Climate Change - Science, Impacts & Economics
5.1	Climate change and global warming
5.2	Green House Gases(GHGs) and their global warming potential and Greenhouse
	effect
5.3	Share and contribution of developed and developing countries in global emission
5.4	UNFCCC, Kyoto Protocol, Paris Agreement and Glasgow CoP
5.5	IPCC (Inter-governmental Panel on Climate Change) and Assessment Reports
5.6	NAPCC/ NDC/ Panchamrit/ SAPCC
5.7	Impact of climate change on developmental activities
5.8	Carbon sequestration and Net Zero Concepts
5.9	Convention on Ozone Depletion, Montreal Protocol & Kigali Amendments
5.10	Ozone Depleting Substances (Regulation and Control) Rules, 2000
5.11	Economics of climate change, concepts of carbon market and carbon trading
Unit- 6	Climate Change – Vulnerability, Adaptations and Mitigation
6.1	Understanding Weather and Climate change, Climate Science, Sectoral Impacts
	Climate Change Vulnerability, meaning, relationship with indicators, Vulnerability
6.2	Assessment, Climate prediction and projection
6.3	Adaptation and mitigation, Climate Resilience
6.4	Concepts of Nature Based Solutions and Circular economy
MODULE- IV	ENVIRONMENT RESEARCH, POLICY, LAWS, PRINCIPLES, CONVENTION &
	EIA
Unit – 7	Environmental Policies, principles, Doctrines, Laws and National
	Legislations on Environmental Protection, Research Methods and Green
	Audits
7.1	Environmental Challenges and Pollution
7.2	Ancient ethics and environmental protection
7.3	State Obligation to Protect & Improve Environment
7.4	The Fundamental Duty of Citizens to protect environment
7.5	The Right to Wholesome Environment
7.6	Right to constitutional remedies and environment
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	Convections on Chemicals and Hazardous Waste
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7.26	Ethical Problems in Research
7.27	Selecting a Problem and Formulating Hypotheses
7.28	Meaning and Characteristics of a Problem Formulating and Hypothesis
7.29	Measurement of scale & Data collection and its types
7.30	Introduction to Measurement, General Problems of Measurement
7.31	Questionnaire design and Variables
7.32	Data organization and coding
7.33	Validity, Types of Validity Reliability
7.34	Relation between Validity and Reliability
7.35	Primary and secondary data collection
7.36	Content analysis
7.37	Sampling Techniques
7.38	Types of Sampling
7.39	Requisites of Good Sampling Method
7.40	Errors in sampling, Simple and stratified sampling
7.41	Systematic sampling (concepts), Sampling size calculation
7.42	Descriptive statistics – Mean, Median, Mode, Data Analysis and report writing
7.43	Standard deviation(concepts) Normal Curve,
7.44	Testing of hypothesis –Null and Alternative hypothesis
7.45	Type I &Type-II errors, Level of significance
7.46	Concepts of Parametric and Non-Parametric Statistical Tests
7.47	Testing significance of single mean and difference between means(upto two
	samples) concepts only
7.48	Project report writing: General Purpose of Writing a Research Report
7.49	Structure and Format of a Research Report
7.50	Case study methods
Unit – 8	EIA – Introduction, concepts, purpose, process and governance
8.1	EIA–Definition, History and Objective
8.2	Reasons for using EIA, Misconception about EIA and counter arguments
8.3	Core Values of EIA-Comprehensive study, sustainability integrity and utility
8.4	Guiding Principles of EIA and its applications
8.5	Merit and Demerits of EIA
8.6	Responsible Authority for conducting EIA and when it should be conducted
8.7	Environment impact and its nature: Magnitude, Extent/Location, Timing and Duration
8.8	Significance of Impact
8.9	Key elements of EIA: Screening, scoping identifying and evaluating impacts, mitigations and issuing environmental statements
8.10	Proposal Identification and Need for EIA
8.11	Indian Policies requiring EIA: Requirement of Prior Environmental Clearance
	(EC),State Level Environment Impact Assessment Authority
8.12	Categorization of projects and activities
8.13	Screening, Scoping and Appraisal Committees
8.14	Stages in the prior Environmental Clearance(EC), Process for New Projects:
0.11	Screening, scoping, public consultation
8.15	Detailed Procedure for conducting public hearing
8.15	,
0.10	Notice of Public Hearing, Supervision and presiding over the hearing, Video
8.17	graphy, Proceedings, Time period for completion of public hearing, Appraisal
0.17	Grant or Rejection of Prior Environmental Clearance, Validity of Environmental Clearance, Post Environmental Clearance Monitoring, Transferability of Environmental Clearance, Infrastructure projects and EIA in India –as per QCI guidelines.
	guidelines Air Pollution(AP), Air Quality(AQ), Noise Vibration(NV), Water Quality, Biologic
8.18	
8.18 8.19	Environment, Land Environment Social-Economic and Health Environment, Risk Assesment

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8.21	Environmental Auditing (EA):Qualities of Environmental Auditors, Contents of EA Reports, Environmental Audit Terminology, Environmental Management System Audit
8.22	Life Cycle Assessment and Management
8.23	Environment Management System
MODULE – V	ENVIRONMENTAL CHALLENGES- POLLUTION CONTROL, WASTE AND DISASTER MANAGEMENT
Unit – 9	Environmental Challenges-Types of Environmental Concepts, Legal Social system, Pollution and Waste Management
9.1	Waste management, Scraps and used metals, Solid waste management(dry and wet)
9.2	Grey water management and wastewater recycling, Recycle Pathways
9.3	Hazardous and other Waste Management and trans-boundary movement Rules, 2016.
9.4	Manufacture, storage and import of Hazardous Chemical Rules, 1989
9.5	Manufacture, use, import, export and storage of hazardous microorganisms/ Genetically engineered organisms for Cells Rules 1989
9.6	Biomedical Waste Management Rules2016
9.7	Recycled Plastic Manufacture and Usage Rules,1999 and Recycled Plastic Manufacture and Usage Amendment Rules, 2002
9.8	Solid Wastes Management Rules 2016
9.9	E-Waste(Management)Rules,2016
9.10	Overview of CSR, ESG
9.11	Triple Bottom Line Approach
9.12	Philanthropy – Conventional and Strategic
9.13	Ethical and Governance Issues in CSR
9.14	All ISO Standards and Codes (Overview)
9.15	Eco marks and eco labeling : Assuring the quality
9.16	Eco-friendly Technologies and its applications
9.17	All ISO Standards and Codes (Overview)
9.18	ISO – 14001, ISO – 4500, ISO - 17025
9.19	AA- 1000
9.20	BS/ISO Guideline on CSR Management (ISO – 26000)
Unit – 10	Disaster Management and Risk Assessment
10.1	Understanding concepts of Natural Disaster: vulnerability, hazard, risk, catastrophe
10.2	Geo-physical disaster, meteorological disaster and man-made disaster
10.3	Disaster preparedness, response and relief
10.4	Rehabilitation, Reconstruction and Recovery