University of Pune  
Faculty of Management Sciences  
Post Graduate Diploma in Environmental Management  
PGDEM 

1 Name of the Course: Post Graduate Diploma in Environmental Management (PGDEM).

2 Objectives of the course:

It is wellfelt need that management experts need to develop concern about environment. Therefore Management faculty has decided to have this type of interdisciplinary diploma course useful to both working managers and future managers. The objectives of the course are:

1. To understand environmental issues in general and related industrial sector in particular.
2. To develop the skill for environment management in the industrial sector.
3. To improve awareness about environmental issues and remedial measures with a social aspect.
4. To develop environment friendly policy instruments.

3 Eligibility: Any graduate from statutory university OR any diploma awarded by the Board of Technical Education of any State Government or Central Government. Post SSC three year Diploma with 2 Years of Post diploma experience or post HSC two year Diploma with one year Post Diploma experience.

4 Assessment of External Papers

The final total assessment of the candidates shall be made in terms of an internal assessment for 30 marks and an external assessment for 70 marks for each course.

External assessment:

The external assessment for 70 marks shall be based on the external written examination to be held at the end of each semester for each course.

5 Duration: 1 year, 2 Semesters

6 Program Structures:

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Subject Title</th>
<th>Hours</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Code</td>
<td>Subject Title</td>
<td>Hours</td>
<td>Marks</td>
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<tr>
<td>Code</td>
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<tr>
<td>0101</td>
<td>Principals &amp; Practice of Management</td>
<td>50</td>
<td>30 70</td>
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<tr>
<td>0102</td>
<td>Basics of Management Accounting</td>
<td>25</td>
<td>15 35</td>
</tr>
<tr>
<td>0103</td>
<td>Data Collection, Analysis &amp; Reporting</td>
<td>50</td>
<td>30 70</td>
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### Semester II

<table>
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<th>Course Code</th>
<th>Subject Title</th>
<th>Hours</th>
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<th>External</th>
<th>Total Marks</th>
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<td>Natural Resource Management</td>
<td>50</td>
<td>30</td>
<td>70</td>
<td>100</td>
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<tr>
<td>0202</td>
<td>Env. Management &amp; EIA</td>
<td>50</td>
<td>30</td>
<td>70</td>
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<tr>
<td>0203</td>
<td>Environmental Pollution &amp; Disaster Management</td>
<td>50</td>
<td>30</td>
<td>70</td>
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<tr>
<td>0204</td>
<td>Project Report</td>
<td>50</td>
<td>30</td>
<td>70</td>
<td>100</td>
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<tr>
<td>0205</td>
<td>Environmental Economics &amp; Indian Environmental Scenario</td>
<td>50</td>
<td>30</td>
<td>70</td>
<td>100</td>
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<tr>
<td>0206</td>
<td>Colloquium</td>
<td>25</td>
<td>15</td>
<td>35</td>
<td>50</td>
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<tr>
<td>0207</td>
<td>Corporate Social Responsibility</td>
<td>25</td>
<td>15</td>
<td>35</td>
<td>50</td>
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<td><strong>Total</strong></td>
<td></td>
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<td>300</td>
<td>180</td>
<td>420</td>
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### Semester I

**0101. Principles and Practices Of Management**

1. History of Management Thought: Development, Changes and Evolution of Management
2. Principles Classical School, Human Relations School, Systems School etc.
3. Functions of Management: Planning, Ordering, Decision Making, Scheduling,
5. Organizing: Nature, Purpose and Process, Type of Organizational Structure, Different Organizational Levels, Span of Management, Levels of Authority.
6. Controlling: Basic Control Process, Critical Control, Points traditional Control Devices, Modern Control Devices, Budgetary Control.
8. Recommended reference books

4. Functions of Executive – Chester Bernard.
5. Management of Organisation – Locus A Allen
6. Management for Results – Peter Drucker
7. Management of Practice – Varanasi Murty

0102. Basics of Management Accounting
4. Audit- An Overview: Principles and practice of audit, statutory audit, internal audit, management audit, cost audit, social responsibility accounting, social audit, ethics audit.
5. Introduction to Environmental Accounting and Auditing:

Reference Books
1. Double Entry Book Keeping – by J. S. Grewal
2. Management Accountancy – by Jawaharwal
5. Business Ethics – by Richard De George

0103. Data collection, analysis and reporting
1. Basic Statistics:
   a) Data, classification of data, tabulation presentation of data, Graphs.
   b) Measure of Central Tendency concept, mean, median, mode, definition, properties, relative and absolute measures problem.
   c) Measure of dispersion- concept, Range, Q.D. mean deviation, Standard Deviation, definition properties, relative and absolute measures problems.
   d) Skewness- concept, type, measure- Bowley’s and Person's coefficient
2. Regression and Correlation: Scatter diagram, Kar Pearson, Correlation coefficient, properties, Linear regression coefficient properties, Rank Correlation, problems.
3. Probability: Concept of probability, various probability distributions, Binomial, Poisson, Normal.
4. Sampling and testing:
   a) Sampling - definition of population and sample, types of sampling, SRS, Stratified, systematic, definition and method.
   b) Definition of Hypothesis, null and alternative, one sided and two sided, level of significance, types of error
   c) Large sample test for mean and proportion, Chi square test of goodness of fit, Independence of attribute
5. Time Series: Basic concept, Components explanation, Estimation of trend by linear fitting and moving average.
6. Practical Statistical Tools: Ishikawa or Fish Bone Diagram, Seven Tools of presenting data, DOE- Design of Experiments, ANOVA- Analysis of variance

Reference Books

**0104. Introduction to Environmental Management**
5. Internet and Environmental Management: Use of internet as a tool, Specific websites related to environmental management, Extracting latest updated information from related sites.
6. Introduction to software packages for GIS and MIS

**Reference Books**

**0105. Introduction to Environment**
2. Environment as Science Introduction, Types of environment- Physical & Cultural, Environmental Science- meaning and definition, nature and scope, methods and importance of study.
Hydrosphere: Realms of water- in ocean, in atmosphere, on the land, underground water, water in biosphere, Aquatic ecosystems.
Lithosphere: landforms and types, Soil as basic natural resource- Definition and Composition, Formation of Soil, Properties of soil, Soil erosion- Causes, Effects and Control measures.

**Reference Books**
2. Ecology of Urban India – by Pramod Singh.

0106. Environmental Legislation
2. Environmental Acts, Rules and Notifications:
The following environmental Acts/Rules will be discussed in details; the rest of the acts, rules and notifications will be referred to:
   a) Water (Prevention & Control of Pollution) Act and the corresponding Rule
   b) Water (Prevention & Control of Pollution) Cess Act and the corresponding Rule
   c) Air (Prevention & Control of Pollution) Act and the corresponding Rule
   d) Environment (Protection) Act and Rule
   e) Hazardous Waste (Management & Handling) Rules
   f) Manufacture, Storage and Import of Hazardous Chemicals Rules
   g) Public Liability Insurance Act and Rule
Refer to MoEF Website (http://envfor.nic.in) for the latest revisions, amendments etc.
Reference books
2. Mhaskar A. K. Environmental Laws

0107. Written Analysis and Communication
(1) Introduction, Nature, scope, functions, Barriers, limitations of business communication
(2) The communication process, Principles and Patterns
(3) Types of communication face-to-face, verbal, Non-verbal, oral, written, body language (Kinesics), meetings, presentations, telephonic communication, Para Linguistics etc.
(4) Written communication (Memo, Letters, Report, Proposal, Note, Job Applications, Resume, Brochures, Advertisements)
(5) Interviews
(6) Group Discussion

Semester II
0201. Natural Resource Management
1. Forest:
2. Wildlife:
3. Energy:
4. Land/ Soil
   Landforms- types and significance, Degradation of land- causes and effects, Desertification. Soil:
Basic Natural Resource, Formation and Composition, Soil erosion, Soil conservation.
Aquaculture- Inland water resources and their economic potential with respect to fisheries. Fresh water fish culture, Establishment and management of fish farm. Fishery – as self employment avenue (small scale industry), Govt. schemes, Training and incentives.

Reference Books
1. Environmental System “Organisation”
7. Watershed Management in India by C. V. S. Murty
8. Groundwater Hydrology by Todd

0202. Environmental Management & EIA
(A) Environmental Management

3. Case Studies in 14001: See IndSearch Monograph on ISO-14001 for cases; select at least two for discussion and understanding

(B) EIA
1. EIA: Steps in EIA: description of proposed activity (+ analysis of need), analysis of site selection procedure and alternate sites, baseline conditions / major concerns, description of potential positive and negative environmental, social, economic and cultural impacts including cumulative, regional, temporal and spatial considerations, significance of impacts, mitigation plans, identify issues related to human health, consideration of alternatives, including not proceeding, monitoring plans (impacts and mitigation efforts), contingency plans for unpredicted impacts, waste minimization and recycling plans, public consultation program, plans to minimize release of adverse substances, terms of reference, any other information deemed necessary. (use UNEP document on EIA as the basis for discussion of various sub-topics)

Reference Books
0203. Environmental Pollution & Disaster Management

(A) Environmental Pollution


Reference Books

3. Air Monitoring Survey Design by Noll, K. E. and Miller, T. L.
7. Air Pollution by H. C. Pertin
8. Air Pollution by Dystsusud.
10. Air Pollution Control Theory by Graw ord.
11. The atmosphere by Tarbuck and Lutgen.
12. Environmental Pollution of Cadmium by Rohatgi.
13. Land Pollution, Cases and Control by Harroson & Laxon.
14. Environmental Pollution and Bhopal Killing.
15. Chemical & Biological Methods for Water Pollution Studies by Trivedi & Goal.
17. Water Pollution and Management by C. F. Vershney.
20. Analytical Chemistry of Industrial Poisons, Hazards and Solvent by Jacob, M. B. 11969),
Interscience, New York.

(B) Disaster Management
1. Hazards in the work place: Pressure, Biological, Chemical, Electricity, Fire, Heat & Cold, Indoor Air Quality, Lighting, Noise, ergonomics, Radiation (ionizing & nonionizing), Vibrations, hours of work, violence in work place
2. Factories Act: Provisions for Industrial Safety and Health as provided in the Factories Act; understanding of Material Safety Data Sheets (at least one example)
3. Accidents and Safety Management: Accident Prevention methods, Safety Management and audit, Personal Protection Approaches
4. Occupational Health & Industrial Hygiene: Scientific and engineering basis for occupational health, biological monitoring (e.g. BEI), Occupational Hygiene, Concept of First Aid, Preventive Measures
5. Occupational Health & Safety Management System: OHSAS - 18000
6. Epidemics: Causes, effects and management of epidemics like Plague, Dengue, malaria.
7. Mitigation Strategy, Disaster planning and Safety regulation
8. Government agencies and other social organizations relevant to natural calamities. Their aims and functions, available assistance and guidance.

Reference Books
2. Perspectives on Environment by I. R. Manners, M.W.M. Micksell

0204. Project Report
Students may select any environmental topic of their choice (in consultation with the faculty) and make a presentation for about one hour; they should be able to answer questions from audience on the topic.

0205. Environmental Economics & Indian Environmental Scenario
1. Environmental Economics: Introduction to WTO and International Trade, Environmental Trade Barriers, Green GDP, Natural Resource Accounting, Green Accounting, Environmental Communication, GRI reports
4. Environmental Movements in India: Case Studies- Silent Valley, Tehri Dam, Chipko Movement, Sardar Sarovar Dam Controversy, Enron Power Project controversy, Thapar Dupont Nylon Project, ENVIS
5. Green Marketing: Emergence of new Environmental market, Green marketing, Environmental strategy and Competitive advantage, Green supply Chain Management, Eco Designing, Eco- Labeling.
Reference Books
5. Economic Development of Business – by Dr. M. Adhikari
8. Factor Four by L Hunter Lovins, Ernst von Weizsäcker and Amory B Lovins
9. Changing Course by Stephan Schmidheiny

0206 Colloquium
Students may select any environmental topic of their choice (in consultation with the faculty) and make a presentation for about one hour; they should be able to answer questions from audience on the topic.

Environmental Management Classics – Students are encouraged to study and discuss the following Harvard Business Review Articles in formal seminars;
(a) A Road Map for Natural Capitalism, A.B. Lovins, H. Lovins & Paul Hawken
(b) Bringing the environment down to earth, F. L. Reinhardt
(c) It’s not easy being green, N. Walley and B. Whitehead
(d) Beyond Greening: Strategies for a Sustainable World, S.L. Hart
(e) Green & Competitive: Ending the Stalemate, M.E. Porter and C. van der Linde
(f) Recycling for Profit: The new green business frontier, D. Biddle
(g) The Case of the Environmental Impasse, A.J. Stern

0207 Corporate Social Responsibility (CSR)
I. Building Blocks of CSR / Sustainability
1. Overview of CSR/Sustainability
2. The Triple Bottom-line Approach
3. Philanthropy – Conventional and Strategic
4. Environmental issues
5. Social issues
6. Labour and related issues
7. Ethical and Governance issues
8. Human Rights – UN Charter

II. Standards and Codes
1. ISO – 14001
2. OHSAS – 18001
3. SA – 8000
4. OECD Guidelines for Multinational Companies
5. Global Compact
6. AA – 1000
7. BS / ISO Guideline on CSR Management (ISO-26000)

III. Engaging the stakeholder
1. Global Reporting Initiative Guideline G-3
2. NGO and CSR
3. Programmes for the neighborhood
4. Markets at the BOP
5. Communication
6. Dilemmas
7. Dow Jones Sustainability Index / FTSE4GOOD Index
IV. Cases and Papers

General Reading:
5. Cradle to Cradle: Remarking the Way We Make things, William McDonough and Michael Braungart, North Point Press, 2002