

**ENVIRONMENTAL SCIENCE**  
**SYLLABUS**  
**M.Sc.**  
**(2015-2017)**  
**&**  
~~**M.Phil**~~  
~~**(2015-2016)**~~



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**INDIRA GANDHI ACADEMY OF ENVIRONMENTAL EDUCATION**  
**RESEARCH AND ECROPLANING**

**JIWAJI UNIVERSITY**  
**GWALIOR M.P. 474011**

**M.Sc. Environmental Sciences**  
**Choice Based Credit System**  
 Four Semester Course  
 Course Structure and Scheme of Examination  
 2015-2017

**SEMESTER I**

Code	Course	C/E/S	L	T	P	Credit	Marks		Total
							IA	EA	
101	Fundamentals Of Environmental, Climatic and Soil Science	Core	3	0	0	3	40	60	100
102	Ecology, Biodiversity, Forestry, Wildlife and Their Conservation	Core	3	0	0	3	40	60	100
103	Environmental Economics and Natural Resources	Core	3	0	0	3	40	60	100
104	Energy and Environment	Core	3	0	0	3	40	60	100
105	Practical I	Core	0	0	3	3	100	-	100
106	Practical II	Core	0	0	3	3	100	-	100
107	Seminar	Core	0	1	0	1	100	-	100
108	Assignment	Core	0	1	0	1	100	-	100
109	Comprehensive Viva-voce (virtual credit)	Core	0	0	4	4	100	-	100

**Total Credit Value: #20+4 (virtual credit)**

**SEMESTER II**

Code	Course	C/E/S	L	T	P	Credit	Marks		Total
							IA	EA	
201	Air, Noise Pollution and Control	Core	3	0	0	3	40	60	100
202	Water, Thermal and Radioactive Pollution	Core	3	0	0	3	40	60	100
203	Hazardous Waste Treatment and Solid Waste Management and Occupational Health	Core	3	0	0	3	40	60	100
204	EIA, EMS and EA	Core	3	0	0	3	40	60	100
205	Practical I	Core	0	0	3	3	100	-	100
206	Practical II	Core	0	0	3	3	100	-	100
207	Seminar	Core	0	1	0	1	100	-	100
208	Assignment	Core	0	1	0	1	100	-	100
209	Comprehensive Viva-voce (virtual credit)	Core	0	0	4	4	100	-	100

**Total Credit Value: #20+4 (virtual credit)**

### SEMESTER III

Code	Course	C/E/S	L	T	P	Credit	Marks		Total IA
							IA	EA	
301	Earth Processes, Hazards And Risk Assessment	Generic Elective/ Centric Elective	3	0	0	3	40	60	100
302	Biotechnology , Toxicology and Environmental Management	Generic Elective/ Centric Elective	3	0	0	3			
303	Surveying, Photo interpretation and Remote Sensing	Core	3	0	0	3	40	60	100
304	Environmental Administration, Law and Judicial Attitude	Core	3	0	0	3	40	60	100
305	Practical I	Core	0	0	3	3	100	-	100
306	Practical II	Core	0	0	3	3	100	-	100
307	Seminar	Core	0	1	0	1	100	-	100
308	Assignment	Core	0	1	0	1	100	-	100
309	Comprehensive Viva-voce (virtual credit)	Core	0	0	4	4	100	-	100

**Total Credit Value: #20+4 (virtual credit)**

## SEMESTER IV

Code	Course	C/E/S	L	T	P	Credit	Marks		Total
							IA	EA	
401	Global Prospects Towards Environmental Ethics and Sustainable Development	Generic Elective/ Centric Elective	3	0	0	3	40	60	100
402	Statistics, Biometry and Research Methodology	Generic Elective/ Centric Elective	3	0	0	3	40	60	100
403	Minor Project	Core	3	0	0	3	100	-	100
404-406	Field work/ Project Work/ Dissertation	Core	0	0	9	9	300		300
407	Seminar	Core	0	1		1	100	-	100
408	Assignment	Core	0	1		1	100	-	100
409	Comprehensive Viva-voce (virtual credit)	Core	0	0	4	4	100		100

**Total Credit Value: #20+4 (virtual credit)**

**\*Instead of laboratory work, student may perform Project work/Industrial Training of 8 or 12 credits.**

**NOTE: Lecture (L): 1 hr = 1 Credit  
Tutorial (T): 2 hr = 1 Credit  
Practical (P): 2 hr = 1 Credit**

**Total Core Course: 68 credits  
Total Elective: 12 credits**

**Total Virtual Credits: 16**

## I SEMESTER

### Paper 101: FUNDAMENTALS OF ENVIRONMENTAL, CLIMATIC AND SOIL SCIENCE

#### Unit I

1. Definition, principle and scope of Environmental Science.
2. Structure and composition of atmosphere.
3. Brief account of Hydrosphere, Global water resources and hydrological cycle.
4. Lithosphere: A brief account
5. Biosphere and its components.

#### Unit II

1. Scale of meteorology: Meteorological parameters pressure, temperature, precipitation, humidity, radiation and wind
2. Atmospheric stability, inversion and wind roses.
3. Climate of India, Monsoons and El nino.
4. Weather and folklores on weather forecast.
5. Climate change

#### Unit III

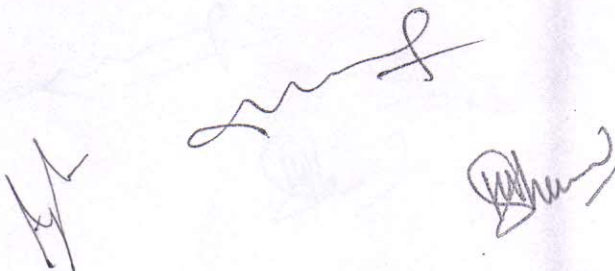
1. Environmental ethics.
2. Environmental education
3. Role of people, Professionals and NGO's in environmental education and Protection.
4. Environmental movements in India.
5. Environment protection faith and religious beliefs.

#### Unit IV

1. Soil and its organic and inorganic constituents.
2. Physical properties of soil.
3. Electro chemical properties of solid constituents.
4. Gas and liquid phases in soil.
5. Bioremediation of contaminated soils.

#### Unit V

1. Methods of soil formation
2. Organic farming, microbes and agriculture
3. Soil types of India
4. Soil erosion and conservation
5. Soil pollution and remedial measures.

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