

**M.Sc. ENVIRONMENTAL SCIENCE  
PROGRAMME CONTENTS**

**I SEMESTER** **Hrs/week** **Credits**

**HARD CORE COURSES - THEORY**

ESH401 Environmental Chemistry	4	4
ESH402 Environmental Geology	4	4
ESH403 Environmental Microbiology	4	4

**SOFT CORE COURSES - THEORY(Out of 2 Courses ONE to be offered)**

ESS404 Environmental Statistics	3	3
ESS405 Environmental Biotechnology	3	3

**PRACTICAL COURSES**

ESP406 Environmental Chemistry Lab.	4	2
ESP407 Environmental Geology Lab.	4	2
ESP408 Environmental Microbiology Lab.	4	2
ESP409 Environmental Statistics Lab.	4	2
ESP410 Environmental Biotechnology Lab.	4	2

**II SEMESTER**

**HARD CORE COURSES - THEORY**

ESH451 Water and Wastewater Management	4	4
ESH452 Occupational Health Hazards	4	4

**SOFT CORE COURSES - THEORY(Out of 3 Courses TWO to be offered)**

ESS453 Advanced Instrumentation	3	3
ESS454 Environmental Toxicology	3	3
ESS455 Remote Sensing and GIS	3	3

**PRACTICAL COURSES**

ESP456 Water and Wastewater Management Lab	4	2
ESP457 Occupational Health Hazards Lab.	4	2
ESP458 Advanced Instrumentation Lab.	4	2
ESP459 Environmental Toxicology Lab.	4	2
ESP460 Remote Sensing and GIS Lab.	4	2

**OPEN ELECTIVE COURSES(Out of 2 Courses ONE to be offered)**

ESE461 Basic science concept in Environment	3	3
ESE462 Environmental Education and Awareness	3	3

**III SEMESTER**

**HARD CORE COURSES - THEORY**

ESH501 Environmental Biology	4	4
ESH502 Solid Waste Management	4	4

**SOFT CORE COURSES - THEORY(Out of 3 Courses TWO to be offered)**

ESS503	Air, Noise and Radiation Pollution	3	3
ESS504	Environmental Impact Assessment	3	3
ESS505	Human Population and Environment	3	3

**PRACTICAL COURSES**

ESP506	Environmental Biology Lab.	4	2
ESP507	Solid Waste Management Lab.	4	2
ESP508	Air, Noise and Radiation Pollution Lab.	4	2
ESP509	Environmental Impact Assessment Lab.	4	2
ESP510	Human Population and Environment Lab.	4	2

**OPEN ELECTIVE COURSES(Out of 2 Courses ONE to be offered)**

ESE511	Natural Resources	3	3
ESE512	Waste Management	3	3

**IV SEMESTER****HARD CORE COURSES - THEORY**

ESH551	Conservation of Biodiversity	4	4
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**SOFT CORE COURSES - THEORY(Out of 2 Courses ONE to be offered)**

ESS552	Energy and Green Technologies	3	3
ESS553	Environmental Pollution and Management	3	3

**PRACTICAL COURSES**

ESP554	Conservation of Biodiversity Lab.	4	2
ESP555	Energy and Green Technologies Lab.	4	2
ESP556	Environmental Pollution and Management Lab.	4	2

**PROJECT WORK**

ESP557	Project Work(Report/Dissertation)	4	4
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# M.Sc. ENVIRONMENTAL SCIENCE PROGRAMME

(CBCS Semester Scheme)  
Scheme of Teaching and Examination  
(As per the University Guidelines)

2016-17

## I SEMESTER

Course code	Course title	Teaching Hrs/week	Exam Hrs	Marks Exams	Marks IA	Total Marks	Credits
<b>HARD CORE COURSES - THEORY</b>							
ESH401	Environmental Chemistry	4	3	70	30	100	4
ESH402	Environmental Geology	4	3	70	30	100	4
ESH403	Environmental Microbiology	4	3	70	30	100	4
<b>SOFT CORE COURSES – THEORY (Out of 2 Courses ONE to be offered)</b>							
ESS404	Environmental Statistics	3	3	70	30	100	3
ESS405	Environmental Biotechnology	3	3	70	30		
<b>PRACTICAL COURSES</b>							
ESP406	Environmental Chemistry Lab.	4	3	70	30	100	2
ESP407	Environmental Geology Lab.	4	3	70	30	100	2
ESP408	Environmental Microbiology Lab.	4	3	70	30	100	2
ESP409	Environmental Statistics Lab.	4	3	70	30	100	2
ESP410	Environmental Biotechnology Lab.	4	3	70	30		
<b>Total</b>						<b>800</b>	<b>23</b>

## II SEMESTER

Course code	Course title	Teaching Hrs/week	Exam Hrs	Marks Exams	Marks IA	Total Marks	Credits
<b>HARD CORE COURSES - THEORY</b>							
ESH451	Water and Wastewater Management	4	3	70	30	100	4
ESH452	Occupational Health Hazards	4	3	70	30	100	4
<b>SOFT CORE COURSES – THEORY (Out of 3 Courses TWO to be offered)</b>							
ESS453	Advanced Instrumentation	3	3	70	30	100	3
ESS454	Environmental Toxicology	3	3	70	30		
ESS455	Remote Sensing and GIS	3	3	70	30		
<b>PRACTICAL COURSES</b>							
ESP456	Water and Wastewater Management Lab.	4	3	70	30	100	2
ESP457	Occupational Health Hazards Lab.	4	3	70	30	100	2
ESP458	Advanced Instrumentation Lab.	4	3	70	30	100	2
ESP459	Environmental Toxicology	4	3	70	30		
ESP460	Remote Sensing and GIS	4	3	70	30		
<b>OPEN ELECTIVE COURSES (Out of 2 Courses ONE to be offered)</b>							
ESE461	Basic science concept in Environment	3	3	70	30	100	3
ESE462	Environmental Education and Awareness	3	3	70	30		
<b>Total</b>						<b>900</b>	<b>25</b>

### III SEMESTER

Course code	Course title	Teaching Hrs/week	Exam Hrs	Marks Exams	Marks IA	Total Marks	Credits
<b>HARD CORE COURSES - THEORY</b>							
ESH501	Environmental Biology	4	3	70	30	100	4
ESH502	Solid Waste Management	4	3	70	30	100	4
<b>SOFT CORE COURSES – THEORY(Out of 3 Courses TWO to be offered)</b>							
ESS503	Air, Noise and Radiation Pollution	3	3	70	30	100	3
ESS504	Environmental Impact Assessment	3	3	70	30		
ESS505	Human Population and Environment	3	3	70	30	100	3
<b>PRACTICAL COURSES</b>							
ESP506	Environmental Biology Lab.	4	3	70	30	100	2
ESP507	Solid Waste Management Lab.	4	3	70	30	100	2
ESP508	Air, Noise and Radiation Pollution Lab.	4	3	70	30	100	2
ESP509	Environmental Impact Assessment Lab.	4	3	70	30		
ESP510	Human Population and Environment Lab.	4	3	70	30	100	2

<b>OPEN ELECTIVE COURSES (Out of 2 Courses ONE to be offered)</b>							
ESE511	Natural Resources	3	3	70	30	100	3
ESE512	Waste Management	3	3	70	30		
<b>Total</b>						<b>900</b>	<b>25</b>

#### **IV SEMESTER**

Course code	Course title	Teaching Hrs/week	Exam Hrs	Marks Exams	Marks IA	Total Marks	Credits
<b>HARD CORE COURSES - THEORY</b>							
ESH551	Conservation of Biodiversity	4	3	70	30	100	4
<b>SOFT CORE COURSES - THEORY(Out of 2 Courses ONE to be offered)</b>							
ESS552	Energy and Green Technologies	3	3	70	30	100	3
ESS553	Environmental Pollution and Management	3	3	70	30		
<b>PRACTICAL COURSES</b>							
ESP554	Conservation of Biodiversity Lab.	4	3	70	30	100	2
ESP555	Energy and Green Technologies Lab.	4	3	70	30	100	2
ESP556	Environmental Pollution and Management Lab.	4	3	70	30		
<b>PROJECT WORK</b>							
ESP557	Project Work (Report/Dissertation)			70	30	100	4
<b>Total</b>						<b>500</b>	<b>15</b>
<b>Grand Total</b>						<b>3100</b>	<b>82+6*</b>

**IA** = Internal Assessment

\* Not included for CGPA

Total Credits: 88 (82+6\*)

Hard Core credit:  $18 + 12 + 12 + 10 = 52$  (59.09%)

Soft Core credit:  $05 + 10 + 10 + 05 = 30$  (34.09%)

Open Elective credit:  $0 + 03 + 03 + 0 = 06$  (6.97%)

**NOTE:**

**BASIS FOR INTERNAL ASSESSMENT:** Internal Assessment marks in theory papers shall be awarded on the basis of theory test (70 Marks), Objective Test (MCQs) (15 Marks), Seminars/Assignments (15 Marks). The marks obtained shall be reduced to 30. One or two internal tests may be conducted in a Semester. Practical Internal Assessment marks shall be based on one Practical test and records. 60 marks for Practical test and 10 marks for Class record. The marks obtained shall be reduced to 30. The test may be conducted 14 weeks after the start of a Semester. Internal Assessment marks for project work (Report/Dissertation) is 30.

**THEORY QUESTION PAPER PATTERN:** Question Papers in all the four semesters consists of three sections (Model question paper enclosed). Section I: Write short notes on any four out of six: (4x4=16 Marks) Section II: Write explanatory notes on any five out of seven: (5x6=30 Marks). Section III: Answer any two out of three: (2x12=24 Marks). Questions are to be drawn from all the units of the syllabus by giving equal weightage to all the units.

**PRACTICAL QUESTION PAPER PATTERN:** 60 marks for practical exam proper (Major experiment - 20 marks, Minor experiments- 10+10 marks, Identify and Comment on -5x4=20 marks) and 10 marks for Class record. The Project work may be conducted either in the department or any other Institution or in an Industry. Project Report/Dissertation carries 70 marks and evaluated as per regulations.