

MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE

ProgrammeCode:ESM

Duration: 2 Years

Teaching &Scheme of Examination

FROM SESSION: 2019-2020 Onwards



**Department of Life Sciences
Faculty of Science**

**CHHATRAPATI SHIVAJI MAHARAJ
UNIVERSITY PANVEL, NAVI MUMBAI**

Semester-I
Teaching & evaluation Scheme

Course Code	Course Name	L	T	P	IA	UE	Total Marks	Credits
ESMC101	Environmental Chemistry	4	0	0	30	70	100	4
ESMC102	Atmospheric Science	4	0	0	30	70	100	4
ESMC103	Environmental Biology	4	0	0	30	70	100	4
ESMC104	Environmental Microbiology And Biotechnology	4	0	0	30	70	100	4
ESMC191	Environmental Chemistry.lab	0	0	4	15	35	50	2
ESMC192	Atmospheric Science lab	0	0	4	15	35	50	2
ESMC193	Environmental Biology lab	0	0	4	15	35	50	2
ESMC194	Environmental Microbiology And Biotechnology lab	0	0	4	15	35	50	2
	Total	16	0	16	180	420	600	24

Semester-II
Teaching & evaluation Scheme

Course Code	Course Name	L	T	P	IA	UE	Total Marks	Credits
ESMC201	Environmental Ecosystem and Biodiversity	4	0	0	30	70	100	4
ESMC202	Natural Resources Management	4	0	0	30	70	100	4
ESMC203	Environmental Sampling and Research Methodology	4	0	0	30	70	100	4
ESMC204	Analytical Techniques for Environmental Monitoring	4	0	0	30	70	100	4
ESMC291	Environmental Ecosystem & management lab	0	0	4	15	35	50	2
ESMC292	Natural Resources management lab	0	0	4	15	35	50	2
ESMC293	Industrial chemistry lab	0	0	4	15	35	50	2
ESMC294	Analytical techniques lab	0	0	4	15	35	50	2
	Total	16	0	16	180	420	600	24

Semester-III
Teaching & evaluation Scheme

Course Code	Course Name	L	T	P	IA	UE	Marks	Credits
ESMC301	Physico-Chemical Treatment of Water & Waste Water	4	-	-	30	70	100	4
ESMC302	Biological Process in Wastewater Treatment	4	-	-	30	70	100	4
ESME303	Elective - I	4	-	-	30	70	100	4
ESMS304	Special Paper – I	4	-	-	30	70	100	4
ESMC301	Physico-Chemical Treatment of Water & Waste Water lab			2	15	35	50	2
ESMC302	Biological Process in Wastewater Treatment lab			2	15	35	50	2
ESME303	Elective - I lab			2	15	35	50	2
ESMS304	Special Paper – I lab			2	15	35	50	2
	Total	16	0	08	240	340	400	24

Semester-IV
Teaching & evaluation Scheme

Course Code	Course Name	L	T	P	IA	UE	Marks	Credits
ESMC401	Air and Noise pollution	4	-	-	30	70	100	4
ESME402	Elective – II	4	-	-	30	70	100	4
ESMS403	Special Paper – II	4	-	-	30	70	100	4
ESMC484	Project	8	-	-	40	140	200	8
ESMC491	Air and Noise pollution			2	15	35	50	2
ESMS493	Special Paper – II			2	15	35	50	2
	Total	20	0	4	180	320	600	24

Total Marks: 2400

Total Credit: 96

List of Elective and Special Papers:

Semester	Course Code (T+P)	Course Name	(L-T-P)	Credits
Elective Papers				
III	ESME301+ESME391	Water and Water Treatment	4-0-4	6
III	ESME302+ESME392	Water supply and resources	4-0-4	6
III	ESME303+ESME393	IPR& Biosafety	4-0-4	6
III	ESME304+ESME394	Solid and hazardous waste mangement	4-0-4	6
IV	ESME401+ESME491	Environmental Geosciences	4-0-4	6
IV	ESME402+ESME492	Environmental Economics	4-0-4	6
IV	ESME403+ESME493	Remote sensing and GIS	4-0-4	6
IV	ESME404+ESME494	Environmental Auditing	4-0-4	6
Special Papers				
III	ESMS301+ESMS391	Environmental Impact Assessment and Legislation	4-0-4	6
III	ESMS302+ESMS392	Bioprocess & Fermentation technology	4-0-4	6
III	ESMS303+ESMS393	Research and communication	4-0-4	6
III	ESMS304+ESMS394	Environmental Measurements	4-0-4	6
IV	ESMS401+ESMS491	Entrepreneurship	4-0-4	6
IV	ESMS402+ESMS492	Agriculture Biotechnology	4-0-4	6
IV	ESMS403+ESMS493	Environmental Monitoring	4-0-4	6
IV	ESMS404+ESMS494	Environmental Planning	4-0-4	6

NOTE: Students have to choose two elective subjects for Semesters III, one from each group Elective I and Special Paper-I. In Semester-IV, the students have to choose two elective subjects, one from each group Elective-II and Special Paper-II. The Special Paper course must be chose in continuation to the course chosen in the previous semester. This choice-based system shall facilitate in development of specialized expertise in thrust areas of Biotechnology. Departmental committee will approve the topic of the project selected by students.