

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM**  
**CHOICE BASED CREDIT SYSTEM (CBCS)**  
**SCHEME OF TEACHING AND EXAMINATION 2016-2017**

**M.Tech. in Waste Water Management, Health & Safety Engineering**

**I - SEMESTER**

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination			Credits	
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks		Total Marks
1	16 CWM 11	Advanced Computational Methods and Numerical Analysis	4	-	3	20	80	100	4
2	16 CWM 12	Aquatic Chemistry and Microbiology	4	-	3	20	80	100	4
3	16 CWM 13	Advanced Waste Water Treatment Technology	4	-	3	20	80	100	4
4	16 CWM 14	Water Treatment Technology	4	-	3	20	80	100	4
5	16 CWM 15x	Elective-I	3	-	3	20	80	100	3
6	16 CWML 16	Environmental Laboratory - I		3	3	20	80	100	2
7	16 CWM 17	Seminar	-	3	-	100	-	100	1
<b>TOTAL</b>			<b>19</b>	<b>6</b>	<b>18</b>	<b>220</b>	<b>480</b>	<b>700</b>	<b>22</b>

<b>Elective - I</b>	
16 CWM 151	Environmental Pollutions and Control Management
16 CWM 152	Renewable & Alternative Fuels
16 CWM 153	Community Health Science and Environmental Sanitation
16 CWM 154	Remote Sensing and GIS in Environmental Engineering

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**II - SEMESTER**

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	
1	16 CWM 21	Occupational Safety and Health Management	4	-	3	20	80	100	4
2	16 CWM 22	Hazardous Waste Management	4	-	3	20	80	100	4
3	16 CWM 23	Transport Modelling of Aquatic Systems	4	-	3	20	80	100	4
4	16 CWM 24	Industrial Effluent Treatment and Engineering	4	-	3	20	80	100	4
5	16 CWM 25x	Elective - II	3	-	3	20	80	100	3
6	16 CWML 26	Environmental Laboratory - II		3	3	20	80	100	2
7	16 CWM 27	Seminar	-	3	-	100	-	100	1
<b>TOTAL</b>			<b>19</b>	<b>6</b>	<b>18</b>	<b>220</b>	<b>480</b>	<b>700</b>	<b>22</b>

<b>Elective - II</b>	
16 CWM 251	Integrated Solid Waste Management
16 CWM 252	Industrial Waste Pollution and Control
16 CWM 253	Environmental Impact Assessment
16 CWM 254	Environmental Planning and Management

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**III- SEMESTER: Internship**

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination			Credit	
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks		Total Marks
1	16 CWM 31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
2	16 CWM 32	Report on Internship	-	-	-	50	-	50	
3	16 CWM 33	Evaluation and Viva-Voce of Internship	-	-	-	-	75	75	
4	16 CWM 34	Evaluation of Project phase -1	-	-	-	25	-	25	1
<b>TOTAL</b>			-	-	-	<b>100</b>	<b>75</b>	<b>175</b>	<b>21</b>

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**IV - SEMESTER**

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	
1	16 CWM 41	Atmospheric Air Pollution and Control	4	-	3	20	80	100	4
2	16 CWM 42	Elective-III	3	-	3	20	80	100	3
3	16 CWM 43	Evaluation of Project phase -2	-	-	-	50	-	50	3
4	16 CWM 44	Evaluation of Project and Viva-Voce	-	-	3	-	100+100	200	10
<b>TOTAL</b>			-	-	<b>6</b>	<b>60</b>	<b>75</b>	<b>450</b>	<b>20</b>

<b>Elective -III</b>	
16 CWM 421	Instrumentation Technique in Environmental Engineering
16 CWM 422	Energy Systems and Environmental Resources
16 CWM 423	Hydraulics of Water and Waste Water Systems
16 CWM 424	Human impact on Marine and Costal Environment

**Note:**

1. **Project Phase-1:** 6-week duration shall be carried out between 2<sup>nd</sup> and 3<sup>rd</sup> Semester vacation. Candidates in consultation with the guide shall carry out literature survey/ visit industries to finalize the topic of Project.
2. **Project Phase-2:** 16-week duration during 4<sup>th</sup> semester. Evaluation shall be done by the committee constituted comprising of HoD as Chairman, Guide and Senior faculty of the department.
3. **Project Evaluation:** Evaluation shall be taken up at the end of 4<sup>th</sup> semester. Project work evaluation and Viva-Voce examination shall conducted
4. **Project evaluation:**
  - a. Internal Examiner shall carry out the evaluation for 100 marks.
  - b. External Examiner shall carry out the evaluation for 100 marks.
  - c. The average of marks allotted by the internal and external examiner shall be the final marks of the project evaluation.
  - d. Viva-Voce examination of Project work shall be conducted jointly by Internal and External examiner for 100 marks.