

**KURUKSHETRA UNIVERSITY  
KURUKSHETRA**

**Scheme of Examination and Syllabus for  
Vocational Course: Soil and Water Testing**

**Course Type: VOC-3**

**Course Code: B23-VOC-317**

**Subject: Geology**

**Under Multiple Entry-Exit, Internship and  
CBCS-LOCF in accordance to NEP-2020 w.e.f.  
2023-24 (in phased manner)**

### Scheme of Examination

Course Type	Course Code	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
VOC-3 @4 credits	B23-VOC-317	Soil and Water Testing (T)	2	2	15	35	50	3 hrs.
		Soil and Water Testing (P)	2	4	15	35	50	3 hrs.

### Syllabus for Examination

Session: 2023-24			
Part A - Introduction			
Subject	Geology		
Semester	III		
Name of the Course	Soil and Water Testing		
Course Code	B23-VOC-317		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/ PC/AEC/VAC)	VOC-3		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: <ol style="list-style-type: none"> <li>1. Learn about basic concept of soil and water.</li> <li>2. Understand about types of soil and aquifers.</li> <li>3. Learn the analysis of soil samples.</li> <li>4. Learn about water analysis.</li> </ol> <hr style="width: 30%; margin-left: 0;"/> 5*. Learn about soil and water testing.		
Credits	Theory	Practical	Total
	2	2	4
Contact Hours	30	60	90
<b>Max. Marks: 100 (50 Th.+ 50 Pr.)</b> <b>Internal Assessment Marks: 30 (15 Th.+ 15 Pr.)</b> <b>End Term Exam Marks: 70 (35 Th.+ 35 Pr.)</b>		<b>Exam Time: 03 Hrs.</b>	
Part B- Contents of the Course			
<u>Instructions for Paper- Setter</u>			
Question No. 1 is compulsory and comprising short answer type questions spread over the entire syllabus, to be answered in 15-20 words. In addition to Question No. 1, there will be eight (08) questions,			

two (02) from each unit. A candidate has to answer four (04) questions, selecting at least one (01) question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	Definition of Soil, Concept of Lithosphere, Soil components: Air, Water, Inorganic and Organic solids, Water and its quality parameters and drinking standard: Physical, Chemical and Biological quality of drinking water.	07
II	Formation of Soil, Types of soils, Soil profile and classification, Types of Aquifer: Aquitard, Aquiclude, Aquifer, Aquifuge, Hydrological Cycle, Zones of Groundwater.	08
III	Soil sample collection and processing purpose of soil testing and analysis, selection of field, method of soil sample collection, Methods of soil sample processing, precaution during soil collection and processing.	07
IV	Water analysis, Water composition analysis, hardness testing, Ph salinity, turbidity, TDS, conductivity testing, Minerals, BOD, COD.	08
V*	Determination of properties of Soil by Casagrande Apparatus, determination of TDS, conductivity, pH, turbidity, temperature, salinity.	60

#### Suggested Evaluation Methods

<p><b>Internal Assessment:</b></p> <p>➤ <b>Theory</b></p> <ul style="list-style-type: none"> <li>• Class Participation: <b>03 marks</b></li> <li>• Seminar/presentation/assignment/quiz/class test etc.: <b>02 marks</b></li> <li>• Mid-Term Exam: <b>10 marks</b></li> </ul> <p>➤ <b>Practicum</b></p> <ul style="list-style-type: none"> <li>• Class Participation: <b>NIL</b></li> <li>• Seminar/Demonstration/Viva-voce/Lab records etc.: <b>15 marks</b></li> <li>• Mid-Term Exam: <b>NIL</b></li> </ul>	<p><b>End Term Examination:</b></p> <p><b>35</b></p> <p><b>35</b></p>
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#### Part C-Learning Resources

##### Recommended Books/e-resources/LMS:

- Hydrology – Principles, analysis and Design by H.M. Raghunath.
- Pollution and Bioremediation by P. C. Trivedi.
- Soil sampling, Preparation and analysis by Marcell Decker.
- Microbiology by Micheal J. Pelczar, E.C.S Chand, Noel R. Krieg.