

DEPARTMENT OF CIVIL ENGINEERING

CONCRETE & CONSTRUCTION TECHNOLOGY LABORATORY

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	CONCRETE & CONSTRUCTION TECHNOLOGY LABORATORY
Purpose	To conduct the experiments for the students to find the properties and strength of Materials
Scope	The student will have the experience in handling the instruments for research & testing.
Responsibility	Faculty i/c of the facility, HOD/CIVIL
CONCRETE & CONSTRUCTION TECHNOLOGY LABORATORY	
<ul style="list-style-type: none"> • Experimental procedure to be followed as given in the manual • Conduct yourself in a responsible manner at all times in the laboratory. • Use safety button, anything required contact technical staff. • Do not eat food, drink beverages, or chew gum in the laboratory. • Do not use laboratory glassware as containers for food or beverages. • Read all procedures thoroughly before entering the laboratory. • Remove all sample test pieces and clean up debris(if vacuum is necessary) • Be alert and proceed with caution at all times in the laboratory. • Return fixtures, tools and equipment to the cupboard. <p style="text-align: center;">PRECAUTIONS TO BE FOLLOWED</p> <ul style="list-style-type: none"> • Set up and use the equipment as directed by your laboratory instructor. • When inserting fixtures, ensure they are aligned properly with the equipment, otherwise damages occurs to fixtures. • Experiments must be personally monitored at all times. Know the locations and operating procedures of all safety equipment including: first aid kit(s), and fire extinguisher. <p style="text-align: center;">RECORD TO BE MAINTAINED</p> <ul style="list-style-type: none"> • Laboratory Manual containing the experiments that can be performed with the equipment • Maintenance Record 	

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Universal Testing Machine (Electronic - 1000 kN)
Purpose	To conduct the experiments for the students to find the strength of concrete and steel.
Scope	The student will have the experience in handling the instruments for testing.
Responsibility	Faculty i/c of the facility, HOD/CIVIL

UNIVERSAL TESTING MACHINE (Electronic - 1000 kN)

SAMPLE PREPARATION & TESTING PROCEDURE

1. Prepare the sample as per **ASTM** standard
2. Mark the gauge length at round or round threaded & flat sample
3. Mount the sample using suitable grips & wedge
4. Calibration the load cell & strain gauge as per the shunt value
5. Select the crosshead speed as per required strain rate
6. Select the temperature as per the required test conditions
7. Set the test speed rate Hz speed rate as per the test required
8. Test the sample up to failure
9. Remove the failed specimen from the grips after test is over.

FOR COMPUTER DATA& CHART

- Select the report test file open the raw data
- Open the raw data in excel sheet & make arrange the chart and data
- Excel file save in correct computer location

PRECAUTIONS TO BE FOLLOWED

- Set up and use the equipment as directed by your laboratory instructor.
- When inserting fixtures, ensure they are aligned properly with the equipment, otherwise damages occurs to fixtures.
- Experiments must be personally monitored at all times. Know the locations and operating procedures of all safety equipment including: first aid kit(s), and fire extinguisher.

RECORD TO BE MAINTAINED

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Loading Frame (Electronic H-type 50 tonnes)
Purpose	To conduct the experiments for the students to find the strength of beams and columns.
Scope	The student will have the experience in handling the instruments for research & testing.
Responsibility	Faculty i/c of the facility, HOD/CIVIL

LOADING FRAME (H-TYPE 50 TONNES)

TESTING PROCEDURE

1. Install the required fixtures for your test
2. Turn on equipment
3. Set the safety stop – upper for tension, lower for compression and flexural(3- or 4- point bending)
4. Calibrate the load cell
5. Put up safety guard
6. Insert the specimen remembering to balance the load to remove specimen load from measurement
7. Zero the extension
8. Conduct test(s)
9. Note down the data
10. Remove all sample test pieces and clean up debris(with vacuum if necessary)
11. Remove fixtures
12. Return all fixtures, tools and equipment it the cupboard

PRECAUTIONS TO BE FOLLOWED

- Do not handle fixtures whilst wearing gloves
- Keep clear of moving parts of the equipment during operation.
- Set up and use the equipment as directed by your laboratory instructor.
- When inserting fixtures, ensure they are aligned properly with the equipment, otherwise damages occurs to fixtures.
- Experiments must be personally monitored at all times. Know the locations and operating procedures of all safety equipment including: first aid kit(s), and fire extinguisher.

RECORD TO BE MAINTAINED

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record