

# LESSON PLAN

DEPARTMENT OF CIVIL ENGINEERING, ITT, CHOUDWAR

SUBJECT: CONCRETE TECHNOLOGY

Periods: 4 per week

SEMESTER: 6TH

NAME OF FACULTY: RITUPURNA SWAIN

ACADEMIC YEAR.2021-2022

Semester From date:

To Date:

No. of weeks: 15

Week	Class Day	Theory / Practical Topics
1st	1 <sup>st</sup>	1.CONCRETE AS A CONSTRUCTION MATERIAL: Grades of concrete , Advantages and disadvantages of concrete.
	2 <sup>nd</sup>	2. CEMENT: Composition, hydration of cement, water cement ratio and compressive strength, fineness of cement
2 <sup>nd</sup>	1 <sup>st</sup>	Setting time, soundness, types of cement.
	2 <sup>nd</sup>	3.AGGREGATE, WATER AND ADMIXTURE: Classification and characteristics of aggregate, fineness modulus, grading of aggregate,I.S.383
3 <sup>rd</sup>	1 <sup>st</sup>	Quality of water for mixing and curing , Important functions, classification of admixtures,
	2 <sup>nd</sup>	I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures
4 <sup>th</sup>	1 <sup>st</sup>	4.PROPERTIES OF FRESH CONCRETE: Concept of fresh concrete, workability, slump test,
	2 <sup>nd</sup>	Compacting factor test, V-bee consistency test and flow test,
5 <sup>th</sup>	1 <sup>st</sup>	Requirement of workability,I.S.1199
	2 <sup>nd</sup>	5.PROPERTIES OF HARDENED CONCRETE: Cube and cylinder compressive strengths, flexural strength of concrete.
6 <sup>th</sup>	1 <sup>st</sup>	Stress-strain and elasticity, phenomena of creep and shrinkage.
	2 <sup>nd</sup>	Permeability, durability of concrete, sulphate, chloride and acid attack on concrete
7 <sup>th</sup>	1 <sup>st</sup>	Efflorescence. 6. CONCRETE MIX DESIGN: a) Introduction , b) Data or input required for mix design.
	2 <sup>nd</sup>	Nominal mix concrete & design mix concrete, Basic consideration for concrete mix design
8 <sup>th</sup>	1 <sup>st</sup>	Methods of proportioning concrete mix – I.S Code method of mix design(I.S.10262)

	2 <sup>nd</sup>	7.PRODUCTION OF CONCRETE: Batching of materials, mixing of concrete materials
9 <sup>th</sup>	1 <sup>st</sup>	Transportation, placing of concrete, compaction of concrete (vibrators), Curing of concrete,
	2 <sup>nd</sup>	Formwork-requirements and types ,stripping of forms. (Concepts only)
10 <sup>th</sup>	1 <sup>st</sup>	8. INSPECTION AND QUALITY CONTROL OF CONCRETE: Quality control of Concrete as per I.S.456, Factors causing the variations in the quality of concrete
	2 <sup>nd</sup>	Mixing, Transporting, Placing &curing requirements of Concrete as per I.S.456.
11 <sup>th</sup>	1 <sup>st</sup>	Inspection and Testing as per Clause 17 of IS: 456, Durability requirements of Concrete as per I.S:456.
	2 <sup>nd</sup>	9.SPECIAL CONCRETE: Introduction to ready mix concrete,
12 <sup>th</sup>	1 <sup>st</sup>	High performance concrete, silica fume concrete
	2 <sup>nd</sup>	Shot-crete concrete or gunitting (Concepts only).
13 <sup>th</sup>	1 <sup>st</sup>	10.DETERIORATION OF CONCRETE AND ITS PREVENTION: Types of deterioration,
	2 <sup>nd</sup>	Prevention of concrete deterioration, corrosion of reinforcement,
14 <sup>th</sup>	1 <sup>st</sup>	Effects and prevention
	2 <sup>nd</sup>	11. REPAIR TECHNOLOGY FOR CONCRETE STRUCTURES: Symptom, cause and prevention and remedy of defects during construction
15 <sup>th</sup>	1 <sup>st</sup>	Cracking of concrete due to different reasons. Repair of cracks for different purposes
	2 <sup>nd</sup>	Selection of techniques, polymer based repairs, common types of repairs.