LESSON PLAN: **CEPC309 PR:3 Design of RCC structures Lab** FOR THE SESSION 2026-27(WINTER-2026) BATCH-2024-27, GOVT. POLYTECHNIC,KANDHMAL

Discipline: Civil Engineering	**Semester: 5th**	Name of the Teaching Faculty : **PRITHIRANJAN PRIYADARSHI PATRO, Sr.Lecturer in Civil Engg. ,Subrat Kumar Behera, LAB Asst. in Civil Engg.**
Subject: CEPC309 PR:3 Design of RCC structures Lab	**No. of days/ per week class allotted: 4**	**Semester From Date : 1/07/2026 to Date: 5/11/2026** **No. of Weeks: 15**
Week	**Class Day**	**Theory/ Practical Topics**
1st	1st	**Module I – AutoCAD Drawing of Reinforced Concrete Members (16 Periods)-Course Introduction** -Course objectives, laboratory rules, introduction to RCC detailing
	2nd	**Review of RCC Fundamentals-** Types of reinforcement, beam behavior, cover, reinforcement symbols
	3rd	**AutoCAD Setup**-Layers, units, templates, drawing standards
	4th	**Singly Reinforced Beam**-Theory of stress and strain distribution
2nd	1st	**Practical 1**-Draw cross-section of singly reinforced beam using AutoCAD
	2nd	**Practical 1**-Draw stress diagram for singly reinforced beam
	3rd	**Practical 1**-Draw strain diagram for singly reinforced beam
	4th	**Practical 1**-Dimensioning and annotation
3rd	1st	**Doubly Reinforced Beam**-Theory and reinforcement arrangement
	2nd	**Practical 1-** Draw cross-section of doubly reinforced beam
	3rd	**Practical 1-** Draw stress diagram of doubly reinforced beam
	4th	**Practical 1**-Draw strain diagram of doubly reinforced beam
4th	1st	**Practical 1**-Final detailing and reinforcement notation
	2nd	**Editing & Plotting-** Layers, text, hatching, plotting
	3rd	**Drawing Verification**-Corrections and discussion
	4th	**Practical Assessment**-Drawing submission and viva
5th	1st	**Module II – RCC Footings and Structural Drawings (14 Periods)-Types of Footings-Isolated, Combined, Strap, Raft, Pile footing**
	2nd	**Practical 2**-Sketch isolated footing
	3rd	**Practical 2-S** ketch combined footing
	4th	**Practical 2**-Sketch strap footing
6th	1st	**Practical 2**-Sketch raft footing
	2nd	**Practical 2-** Sketch pile footing
	3rd	**Introduction to RCC Structural Drawings**-Reading structural drawings

	4th	**Beam Reinforcement Drawing-** Interpretation of detailing
7th	1st	**Column Reinforcement Drawing-** Interpretation of detailing
	2nd	**Slab Reinforcement Drawing-**Interpretation of detailing
	3rd	**Staircase Reinforcement Drawing-** Interpretation of detailing
	4th	**Footing Reinforcement Drawing** -Interpretation of detailing
8th	1st	**Practical 3-**Interpretation of complete structural drawing
	2nd	**Practical Assessment-**Submission and viva
	3rd	**Module III – Reinforcement Checklist and Site Visit (14 Periods)-Reinforcement Inspection-Site requirements and quality checks**
	4th	**Beam Reinforcement Checklist-**Preparation using drawings
9th	1st	**Column Reinforcement Checklist-** Practical exercise
	2nd	**Slab Reinforcement Checklist-**Practical exercise
	3rd	**Footing Reinforcement Checklist-**Practical exercise
	4th	**Staircase Reinforcement Checklist** -Practical exercise
10th	1st	**Checklist Compilation-**Combined reinforcement checklist
	2nd	**Site Visit Orientation-**Objectives, safety precautions
	3rd	**Site Visit-**Observation of reinforcement in beams and slabs
	4th	**Site Visit-** Observation of columns and footings
11th	1st	**Site Visit-**Observation of staircase reinforcement
	2nd	**Report Preparation-**Data collection and photographs
	3rd	**Practical 5-**Preparation of detailed site visit report
	4th	**Assessment-** Report evaluation and viva
12th	1st	**Module IV – STAAD.Pro Modelling, Analysis and Design (16 Periods)-Introduction to STAAD.Pro-Interface and workflow**
	2nd	**Modelling Basics-**Nodes, beams and supports
	3rd	**Material Properties-**Concrete grades and sections
	4th	**Load Definition-**Dead load, live load and load combinations
13th	1st	**Practical 6-**Model a simply supported RCC beam
	2nd	**Practical 6-** Assign supports and loads
	3rd	**Practical 6-**Run structural analysis
	4th	**Results Interpretation-**Shear force and bending moment diagrams
14th	1st	**Beam Design-** RCC beam design commands
	2nd	**Reinforcement Details-**Review of design output
	3rd	**Design Optimization-**Section modification
	4th	**Report Generation-** Design reports and printouts
15th	1st	**Model Verification-** Error checking and corrections
	2nd	**Mini Project-** Complete beam modelling and design
	3rd	**Project Presentation-** Discussion of modelling results
	4th	**Final Practical Examination-**Viva, project submission and evaluation

H.O.D
Dept. of Civil Engg.
Govt. Polytechnic
Kandhamal