

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF
ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN
Session-2022-2023

Discipline: CIVIL ENGINEERING Engg. Semester: 5th

Name of the Teaching Faculty: ARUN KUMAR BHOTI

Subject: STRUCTURAL DESIGN-II No. of Days/per week class allotted 4

Semester From Date : 15-09-2022 To Date : 22-12-2022 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1	1st	Structural steel and sections Types of steel structure
	2nd	Properties of steel structure, advantages and disadvantages
	3rd	Rolled steel sections, I-sections, channel sections, Angle sections, Tee sections
	4th	Loads, types of loads. Load combinations
2	1st	Structural analysis and design philosophy principles of limit state design
	2nd	Bolted connections, classification, advantages and disadvantages of bolted connection
	3rd	Different terms pitch, edge distance, gauge distance, staggered pitch of bolt, Lap joint, butt joint
	4th	Specification for bolted joint, assumptions and principles of design
3	1st	Numerical practice
	2nd	Failure of a bearing type of bolted joint Efficiency of a joint
	3rd	Welded connections, types of welded connections
	4th	Strength of plate in a joint shearing strength, bearing strength

Arun Kumar Bhoi
Signature of the Faculty

Subject: STRUCTURAL DESIGN-II No. of Days/per week class allotted 4

Semester From Date : 15-09-2022 To Date : 22-12-2022 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
4	1st	Advantages and disadvantages of welded connections
	2nd	Design stresses in weld, Numerical practice
	3rd	Strength of welded joints
	4th	Common shapes of tension members
5	1st	Types of failure of tension members
	2nd	Design strength of tension member, concept of shear lag
	3rd	Maximum values of effective slenderness ratio
	4th	Design of tension member subjected to axial load
6	1st	Block shear failure
	2nd	Strength of angle section in rupture
	3rd	Numerical practice
	4th	Analysis and design of single angle and double angle section

Arun Kumar Bhoi
Signature of the Faculty

Subject: STRUCTURAL DESIGN-11 No. of Days/per week class allotted 4

Semester From Date : 15-09-2022 To Date : 22-12-2022 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
7	1st	Assignment, Tension members and their bolted and welded connections with gusset plate
	2nd	common shapes of compression member
	3rd	Buckling of columns, slenderness ratio
	4th	Design compressive stress and strength of compression member
8	1st	Design compressive stress for columns
	2nd	Design compressive stress for angle struts
	3rd	Analysis and design of compression member
	4th	Numerical practice, continuous members
9	1st	Assignments
	2nd	steps for design of a compression member
	3rd	Limitations to choice a steel section for connections
	4th	Common cross-sections of steel beams

Arun Kumar Bhoi
Signature of the Faculty

Subject: STRUCTURAL DESIGN-II No. of Days/per week class allotted 4

Semester From Date : 15-09-2022 To Date : 22-12-2022 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
10	1st	Basic concept of plastic theory
	2nd	Design limits
	3rd	Web crippling and web buckling
	4th	Design of laterally supported beams
11	1st	Built up beams
	2nd	Numerical practice
	3rd	Analysis and design of single angle section
	4th	Assignments, problem practice
12	1st	Steel structure like trusses, columns and girders
	2nd	Rounded tubular sections
	3rd	Permissible stresses
	4th	Tubular compression member

Arun Kumar Bhoi
Signature of the Faculty

Subject: STRUCTURAL DESIGN-II No. of Days/per week class allotted 4

Semester From Date : 15-09-2022 To Date : 22-12-2022 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
13	1st	Tubular tension member
	2nd	Joints in tubular trusses
	3rd	Numerical practice
	4th	Design considerations for masonry walls
14	1st	Design for columns
	2nd	Load bearing and non load bearing walls
	3rd	Permissible stresses
	4th	Slenderness ratio
15	1st	Numerical practice
	2nd	Numerical practice
	3rd	Effective length, height and thickness
	4th	Revision, doubt clearing class

Arun Kumar Bhor
Signature of the Faculty