

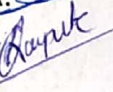

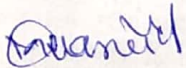


19/04/2021

Date:

All the faculty members of Department of Civil Engineering are hereby informed that the following faculty members are appointed as a coordinator in syllabus setting committee for design and development of curriculum for Add on course STAAD PRO.

1. Prof. Mehetre P.R. 
2. Prof. Kolhe S. B. 
3. Prof. Malunjkar J.A. 
4. Prof. Satpute C.R. 



Dr. M.R. Wakchaure

Head, Department of Civil Engineering

Head of The Deptt. (Civil)
Amrutvahini College of Engg.
Sangamner 422608

INTRODUCTION TO STAAD.pro

Course Objectives:

- Appreciation of Structural Engineering in Students
- Familiarity for the use of STAAD.Pro for Structural Design

Course Outcomes

- Students shall be able to use to the software efficiently (Level – Intermediate)
- Students shall be able to analyze & design Simple RC Building in STAAD.Pro
- Students shall be able to analyze & design Simple Steel Building in STAAD.Pro

Basic Requirement for Course

- Knowledge of strength of material, structural analysis
- Knowledge of Steel & RC Design
- Course certificate to students shall be arranged by college

Prerequisite

- Preinstalled STAAD.Pro licensed copy
- Permission to use computer lab
- Coordinating faculty throughout the course

Students shall carry following

- RC Design Book
- Steel Design Book
- Note Book
- Calculator
- Stationary
- IS456, IS800, Steel Table

Course Details / Structure

- Course Duration: 40 hours
- Contact Hours at College: 32 hours (Theory hours = 12, Practical Hours = 20)
- Long term design problem at the end of course.
- Evaluation of long term design problem with assessment report
- Online counseling

SCHEDULE OF PROGRAM

Day 1: Faculty: Yogesh Pisal

Session 1	10.00am to 11.00am
Session 2	11.00am to 01.30pm
Break	01.30pm to 02.00pm
Session 3	02.00pm to 03.00pm
Session 4	03.00pm to 05.30pm
Session 5	05.45pm to 06.45pm

Day 2: Faculty: Yogesh Pisal

Session 6	08.00am to 09.00am
Session 7	09.00am to 11.30am
Session 8	11.30am to 12.30pm
Break	12.30pm to 01.00pm
Session 9	01.00pm to 03.30pm
Session 10	03.30pm to 04.30pm

Day 3: Faculty: Amol Taralkar

Session 11	10.00am to 11.00am
Session 12	11.00am to 01.30pm
Break	01.30pm to 02.00pm
Session 13	02.00pm to 03.00pm
Session 14	03.00pm to 05.30pm
Session 15	05.45pm to 06.45pm

Day 4: Faculty: Amol Taralkar

Session 16	08.00am to 09.00am
Session 17	09.00am to 11.30am
Session 18	11.30am to 12.30pm
Break	12.30pm to 01.00pm
Session 19	01.00pm to 03.30pm
Session 20	03.30pm to 04.30pm

Day 1: Hours = 8 hours (Theory = 3, Practical = 5)

Session 1 - Theory: STAAD Basics	1.0 hours
Introduction	
Basic Geometry <ul style="list-style-type: none"> • Nodes • Members • Plates 	
Support Conditions <ul style="list-style-type: none"> • Pinned • Fixed • Roller • Spring 	

Session 2 - Practical: Creation of Geometry	2.5 hours
Examples <ol style="list-style-type: none"> 1. Simply Supported Beam 2. Fixed End Beam without intermediate node 3. Fixed End Beam with intermediate node 4. Continuous / Overhang Beam 	

Session 3- Theory: Loads & Load Combinations	1.0 hours
Primary Load Cases	
Loading <ul style="list-style-type: none"> • Uniformly Distributed Loads • Point Loads • Uniformly Varying Loads • Spring 	
Load Combinations	

Session 4 - Practical: Loads & Load Combinations	2.5 hours
Examples <ol style="list-style-type: none"> 1. Simply Supported Beam: <ol style="list-style-type: none"> a. UDL b. Point Load c. UVL 2. Fixed Beam without intermediate node: <ol style="list-style-type: none"> a. UDL b. Point Load c. UVL 3. Continuous Beam: <ol style="list-style-type: none"> a. UDL + UDL b. UDL + Point Load c. UDL + Point Load + UVL 4. Overhang Beam: Point Load 	

Session 5- Theory: Analysis & Troubleshooting	1.0 hours
Analysis of fixed beam without intermediate supports	
Warning & Resolution of Comments	
Static Checks	
Concluding Remarks & Feedback	

Day 2: Hours = 9 hours (Theory = 3, Practical = 5)

Session 6 - Theory	1.0 hours
Revision till session 5	
Results: Support Reactions, SFD, BMD	
Space Frames: Portal Frame, Simple Structure, Floor Loads	

Session 7 - Practical: Analysis, Troubleshooting & Results	2.5 hours
<p>Examples</p> <ol style="list-style-type: none"> 1. Simply Supported Beam: <ol style="list-style-type: none"> a. UDL b. Point Load c. UVL 2. Fixed Beam without intermediate node: <ol style="list-style-type: none"> a. UDL b. Point Load c. UVL 3. Continuous Beam: <ol style="list-style-type: none"> a. UDL + UDL b. UDL + Point Load c. UDL + Point Load + UVL 4. Overhang Beam: Point Load 	

Session 8- Theory: Introduction to Building Modeling	1.0 hours
Building Layout	
Structural Elements	
STAAD Model for Building	
Loading for Building	
Introduction to Wind Loading on Building	

Session 9 - Practical: Loads & Load Combinations	2.5 hours
<p>Examples</p> <ol style="list-style-type: none"> 1. Simple Structure - 1 2. Simple Structure - 2 3. Simple Structure - 3 	

Session 10-Project 1 (RC Building)	1.0 hours
Problem Definition	
Discussion on Estimation of Loads	
Assignment	
Finalize Building Layout	
Calculation of DL, LL & WL	
Finalize Column & Beam Positions	
Finalize Preliminary Dimensions (Manual Calculations)	
Hand sketches	
Concluding Remarks & Feedback	

Day 3: Hours = 9 hours (Theory = 3, Practical = 5)

Session 11 - Theory	1.0 hours
Revision till session 10	
RC: Design of Foundations, Columns, Beams & Slabs	

Session 12 - Practical: RC Building	2.5 hours
Project 1	
1. Modeling the Geometry	
2. Primary Loads & Load Combinations	
3. Analysis & Results	
4. Design of Foundations, Columns, Beams & Slabs	

Session 13-Theory: Introduction to Steel Design	1.0 hours
Shear & Moment Connections (Moment Releases)	
Application of One Way Loads	
Modeling of Truss (Truss Assignment)	
Basics of Design & Design Parameters in STAAD	

Session 14 - Practical: Steel Design	2.5 hours
Modeling, Loading & Design	
1. Truss	
2. Moment Frame	
3. Braced Frame	

Session 15-Introduction to Design of Steel Building	1.0 hours
General Arrangement	
One way & two way loadings	
Requirement & Feasibility of braces and moment connections	
Discussion on Sample Steel Building	
Concluding Remarks & Feedback	

Day 4: Hours = 9 hours (Theory = 3, Practical = 5)

Session 16 - Theory: Project 2 - Steel Building	1.0 hours
Problem Statement: Regular Building	
Estimation of Loads	
Finalization of Loads & Load Combinations	
Discussion on Design Parameters	

Session 17 - Practical: Project 2 - Steel Building Design	2.5 hours
Project 2	
1. Modeling the Geometry	
2. Primary Loads & Load Combinations	
3. Analysis & Results	
4. Design of Members	
5. Material Takeoff	

Session 18-Theory: Project 3 - Steel + RC Building Design	1.0 hours
Problem Statement: Shed with RC columns upto mid height	
Estimation of Loads	
Finalization of Loads & Load Combinations	
Discussion on Design Parameters	

Session 19 - Practical: Project 3 - Steel + RC Building Design	2.5 hours
Project 3	
1. Modeling the Geometry	
2. Primary Loads & Load Combinations	
3. Analysis & Results	
4. Design of Members	
5. Material Takeoff	

Session 20-Conclusion & Long Term Project	1.0 hours
Problem Statement - Long Term Project	
Discussion	
Student Assignment	
Finalization of Geometry	
Modeling, Analysis & Design of Building	
Preparation of Calculation Report	
Preparation of Design Drawings (Hand drawn / AutoCAD)	
Concluding Remark & Feedback	

Prepared by:

1. Prof. Mehetre P.R.
2. Prof. Kolhe S. B.
3. Prof. Malunekar J.A.
4. Prof. Satpute C.R.

Checked by:

Head, Department of Civil Engineering