GURURAYAR ASSOCIATES

ENGINEERING CONSULTANCY & TRAINING'S

ISO 9001-2015 CERTD, Government Registration No.**TN270027105**

International IEC No. : **CCGPP6717H**

We are GURURAYAR ASSOCIATES MSME registered and ISO 9001-2015 certified single ownership company established in 2016 with 25 years of Industrial, commercial and residential design/consultancy experience in the field, we decided to alter direction. Now, we share our passion by helping others.

OUR MISSION:

To build an independent professional structural design engineers/consultants in all over India and abroad as well. We train people with our practical design methodology which is being currently practiced in engineering consultancy. We are committed to excel the quality and economic structural design services to our clients as well.

Our ramp up process is designed to empower your team.

Business mentors are key—that's why when it comes to client selection, we're choosy. We want to give each of you the right time and guidance you deserve.
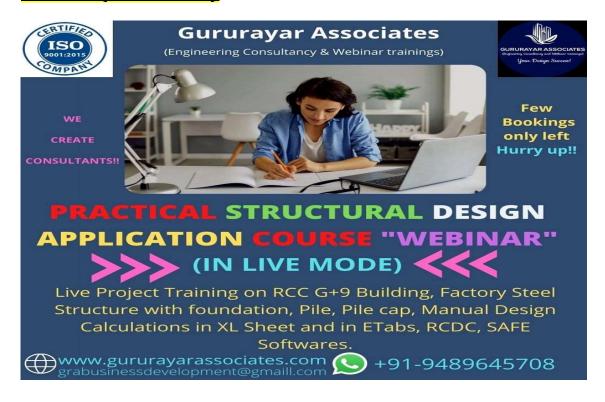
OUR MOTTO: HELP EACH OTHER!   GROW TOGETHER!!

TRANSFORMING MILLIONS OF CIVIL ENGINEERS FROM ALL OVER THE GLOBE IN TO DESIGNING AND CONSULTANTS FIELD!

MAJOR BENEFITS OF OUR TRAINING'S

TR–1005. PRACTICAL STRUCTURAL DESIGN APPLICATION COURSE (LIVE MODE)

What you will get in this Training?

- 👍 **RCC Superstructure Manual design XL sheets**

- 👍 **RCC Substructure Manual design XL sheets**

- 👍 **STEEL Superstructure Manual design XL sheets**

- 👍 **STEEL connections Manual design XL sheets**

- 👍 **Software installation support remotely**

- 👍 **ETABS, STAADPRO, RCDC, SAFE Software Files**

- 👍 **ETABS, STAADPRO, RCDC & SAFE software worked out example design files**

- 👍 **PDF code books and PDF reference books**

- 👍 **Daily Class notes**

- 👍 **1 Year Free Access for All Class Recorded Videos.**

- 👍 **Finally, after completion of Project submission, Course Completion Certificate**

At the end of this course, you will be fully equipped to simply pass any job interviews and hit the design engineer job easily or install your own consultancy business in your area. Software Manual Files

- 👍 Structural design basics & concepts Theory in practical way.

- 👍 Practical Loading Calculation (Gravity &Lateral) or RCC & STEEL Structures.

- 👍 Manual Design of RCC Superstructure (Slab, Beam, Column) in XL.

- 👍 Manual Design of RCC Sub-structure (Shallow & Deep Foundations) in XL.

- 👍 ETABS software design of RCC G+9 building.

- 👍 RCDC software automated detail drawings generation.

- 👍 SAFE software combined and MAT footing design.

- 👍 Manual design of STEEL super structure (Deck plate, Beam, Column) in XL.

- 👍 Manual design of all types of steel structure connections in XL.

- 👍 ETABS software design of Ware house STEEL structure with 5-ton EOT crane.

- 👍 PEB steel structure conceptual design in ETABS software.

DETAILED SYLLABUS FOR PRACTICAL STRUCTURAL DESIGNING APPLICATION COURSE

GENERAL PART: -

- 👍 Conceptual Application of Structures in Residential, Commercial and Industrial fields.

- 👍 Introduction of Basics of Structures & Technical terms

- 👍 IS-codes for various analysis, design and detailing & Small Frame Analysis Load transfer concept in in XL sheet.

- 👍 Gravity Load manual calculations (DL, LL, FF, EQPL) in XL sheet.

- 👍 Wind & Seismic load manual calculations in XL sheet.

- One Way Slab Manual Design in XL sheet.

- Two Way Slab Manual Design in XL sheet.

- Beam manual Design (Singly and Doubly reinforced beams) in XL sheet.

- Column manual design (Axial Gravity, Uniaxial, Biaxial Bending types) in XL sheet.

- STAADPRO or ETABS analysis and design software introduction, input through Various tab, modelling.

- STAADPRO or ETABS analysis and design of slabs, beams and columns.

- STAADPRO or ETABS result extraction and minor manual exceptional checks that are not covered in software.

- Ductile & Non-ductile frame design.

- Footing manual Design in XL sheet.

- Footing design in RCDC software.

- Pile-cap manual conceptual design in XL sheet.

- Pile reinforcement manual Design in XL sheet.

- Pile-cap design in RCDC software.

- Combined & Mat Foundation design SAFE software. (This is special inclusion for timely fee-paying persons only)

STEEL DESIGN PART: -

- Introduction to steel Structures.

- Industrial Building Steel Truss conceptual design.

- Tension Member manual design in XL sheet.

- Compression Member manual design in XL sheet.

- Flexural Member manual design in XL sheets.

- Tension, Compression and Flexural members design in STAADPRO OR ETABS software.

- Various Connections in manual Design in XL sheets.

- Connections design in ETABS OR STAADPRO.

- Lifting analysis of Pad-eye through FEM method in STAADPRO

- Built up beam in STAADPRO OR ETABS.

✳ Defining RSA functions.

✳ Manual calculation of sa/g acceleration values

✳ Creating Dynamic loads.

✳ Creating Dynamic modal cases.

✳ Perform RSA Analysis & Scale factor correction of static & Dynamic base reactions.

✳ Correcting story deflections, drifts, and story torsional effects in modal by shear wall or bracings insertion.

✳ Performing structural design.

STAADPRO Contents Covered :-

✳ Overview of Structural Analysis and Design

✳ Introduction to STAAD Pro. V8i

✳ Getting Familiar with STAAD Pro. Workspace

✳ STAAD Editor

✳ GUI and Structure Wizard

✳ Creating a New Project and Units

✳ Global Coordinate System Vs. Local Coordinate

✳ Beta Angle

✳ Introduction to File, Edit, View, Selection, Geometry, Commands, Analyze, Mode

✳ Introduction to Snap Node/Beam

✳ Insert Node and Add Beam

✳ Translational Repeat

✳ Circular Repeat

✳ Move, Rotate and Mirror

✳ Member Offset

✳ Connect Beam Along

- ✳ Intersect, Merge, Break, Splits, Renumber and Stretch selected members
- ✳ Introduction to Setup, Geometry, General, Analysis/Print and Design
- ✳ Assigning Properties
- ✳ Assigning Supports
- ✳ Group Specification
- ✳ Assigning Load
- ✳ Structure Analysis
- ✳ Material Specification
- ✳ Loading
  - ☛ Self-weight
  - ☛ Nodal Load
  - ☛ Member Load
  - ☛ Area Load
  - ☛ Floor Load
  - ☛ Wind Load
  - ☛ Moving Load
  - ☛ Reference Load
  - ☛ Plate Load
  - ☛ Seismic Load
  - ☛ Automatic Load Combination
- ✳ Introduction to Analysis
- ✳ Perform Analysis
- ✳ Overview of Output Page
- ✳ Pre-analysis and Post-analysis Print
- ✳ Inactive/Delete Specification
- ✳ General Guideline for Design
- ✳ Column and Beam Design
- ✳ Reinforced Concrete Design G+9 Building with Response Spectrum Analysis.
- ✳ Warehouse steel structure design with 5 tons EOT crane.

✳ Due To Online, It Saves Travel Time, Energy and Related Expenses.

✳ One Year Backup Consultation Support for Their Office Works Extended For Trained Candidates.

✳ Clear Understanding of Civil &Structural Design Process.

✳ Expertise In Manual Calculations.

✳ Expertisation In Design Software Like STAADPRO/ETABS/Safe Etc.,

✳ Knowledge In Current Industry Work Culture.

✳ Immediate Take Off When Job Is Assigned, No Pre-Trainings Required from Junior Level.

✳ Ability To Become Senior/Lead Level Within One Year of Job Assignment.

✳ Expertisation In Construction Problems Solving.

✳ Expertisation In Quick Solutions at Site.

Following Practical Structural Design points, we teach in our ONLINE Structural Design training: - (Both Manual design in XL and Softwares method)

1. Load transfer sequence and technique in a structure
2. Limitations of all design and detailing softwares
3. How Fix, pin end conditions are to be constructed at site
4. What are the effects of interchanged end condition at site?
5. What and how are the construction loads to be added in structural design, which are not said by any codes
6. Practical layout of re-bars in slabs based on BM diagram
7. How to assume the rebars in design and reconfirm the assumptions
8. How to prepare the beam and column layout drawings as per Architectural drawings
9. How to orient the columns according to major and minor axis BM's
10. How to structurally rectify the deflection failures in constructed beams
11. How to rectify the buckling failures in constructed columns

12. How to redesign any columns or beams to increase the sizes after construction

13. How to give input to the structural design softwares according to site condition

14. How to read the output of structural design softwares and understand them for detailing

15. How to do the ductile and non-ductile designs in Seismic zones

16. How to create a structural analysis model from scratch say from architectural drawing

17. Why the section classification check has no elastic stage

18. What are the meanings of Plastic, compact and semi-compact stages?

19. What is diaphragm and how to define in practical way

20. P-Delta analysis in practical way

21. How to design steel structures without bracing

22. Practical concepts of Connection load calculation

23. What are the different partial end conditions and how to practically model in software?

24. How to avoid slenderness of steel beam and columns without increasing section geometry

25. Practical concepts of all type of foundations including pile cap

26. Thermal and shrinkage Crack checks

27. Practical examples of Strength design and serviceability designs

28. How to prevent Sliding and Overturning failures in foundation designs

29. PEB structures design

30. FEM analysis of a lifting pad eye hook, that is used to lift steel beams in site works

31. How to create detailed drawings from structural softwares

32. Stages and sequences of construction according to design phases

33. Stages of checks in structural drawings and calculations, with check list

34. What is Definition of Structure

35. What is meant by members and elements in the structure?

36. Why masonry wall is not a structural member in structure

37. Why beams and columns are not required if a structure is made up of shear walls only

38. What is flexure member and why is it being called so

39. How a tension member looks like in real time scenario and how to design it

40. What is compression member? and examples

41. What is the difference between structural analysis, design and detailing?

42. What is meant by FEM method for analysis and design, and why to use that

43. What are the varieties and types of loads and how to apply in real time?

44. What is compression and tension zone of a member/element and why is it important and application in real time

45. What are the limitations of all structural design softwares and how to overcome these limitations?

46. What is limit state design and working stress design and which one to use

47. What is linear and non-linear analysis and how to execute

48. What is major, minor and neutral axis of a member and why is it important

49. How to define SF, BM, Torsion, Axial-force, in a practical way with some tricks

50. How to define buckling, deflection and cripling

51. How to technically define various end support conditions like FIX, SS, PIN, ROLLER and Free

52. How to construct various end support conditions like FIX, SS, PIN, ROLLER and Free

53. What is meant by elastic, plastic and ultimate stage of a material and how to apply in real time design process

54. How to refer the parameters from IS codes

55. Load transfer technique of a structure with sequence

56. How to calculate the gravity loads?

57. How to calculate the construction loads

58. How to calculate the MEP services loads

59. How to calculate the crane impact load

60. How to calculate the wind load as per code

61. How to apply wind loads on structure based on surface pressure coefficients

62. How to calculate the seismic loads as per code

63. How to apply seismic loads on structure based on floor wise distribution

64. How to calculate the base reactions of column for foundation design in manual method

65. What is the difference between one way & two-way slab and how the load transfer happens in real time?

66. Why to assume depths of slabs while stating the calculation

67. What is effective depth and why not the engineering process does not use overall depth in design

68. Why shorter span is governing direction in slab design

69. What are the reasons for having cover in concrete and how to identify cover based on various environment?

70. What is meant by effective span and difference between full span and effective span

71. What is collapse and serviceability case loading combinations and how to apply in real time

72. Why loading combination is important and what is meant by combining loads

73. What are the steps involving in slab, Beam, Column, Foundation and pile cap design?

74. How to calculate the size of members from BM

75. How to calculate the stirrups requirement from SF

76. How much is minimum depth and reinforcement requirement of code

77. In which situations collapse combination to be used and in which serviceability to be used

78. What is the difference between cast in situ and precast structures and how to implement in real time?

79. How the main bar and distribution bars have to be laid at site, and what will happen if wrongly laid and how to rectify the fault

80. How to calculate clashed BM for two-way slabs

81. How to design FIX, SS, and cantilever slabs and Beams

82. How to check the crack width of slabs, beams and columns

83. What is singly reinforced beam and doubly reinforced beam and in which situation those to be designed

84. What is under and over reinforced beams

85. For which loads factor of safety not to be applied in beam design and why

86. How to calculate loading on beams from various types of slabs

87. What is the difference between roof beams, plinth beams and tie beams and why the depth varies for all and how the end condition is to be designed and constructed?

88. How to execute the deflection check of slabs and beams

89. What is the difference between vertical shear and horizontal shear in a beam and how to design the stirrups for those two?

90. How to get the slabs, beams in just pass condition

91. Difference between short and long column and its application in real time

92. Difference between axial, uniaxial and biaxial loading columns and its application in real time

93. How to apply the wind and seismic loads in column design

94. Difference between reinforcement equally distributed on 2 sides and 4 sides and its application

95. How to calculate slender BM and P-Delta BM in column design

96. What is meant by interaction or utilization ratio and why to calculate this

97. How to design circular columns

98. Difference between STAADPRO, ETABS, RCDC and connection softwares

99. How to rectify failure cases in FEM softwares

100. Various types of failures and understanding them all

101. How detailing in FEM softwares is not much clear

102. How to export and execute detailing in RCDC software

103. What is the relation between Kl/r ratio and l/d ratio?

104. Why Kl/r ratio is very important in steel member design

105. Why truss required one end pin and another end roller support

106. Difference between rolled sections and welded build-up sections and in which situations they are to be used

107. What is section compactness check and implementation in design?

SYLLABUS FOR PRACTICAL STRUCTURAL DESIGN APPLICATION COURSE PROJECT WORK: -

RCC PROJECT Work :-

☛ Design of G+9 building.

☛ Review and Q&A.

STEEL PROJECT WORK: -

☛ Design of Industrial Storage Building Project submission.

☛ Review and Q&A.

MODE & DURATION OF COURSE

Mode   :   This LIVE MODE course training in skype, classes on alternative days 1hr Live interactive session.

Duration: Course Duration is 8 months.

COURSE FEE & PAY TERM DETAILS:

Payment Modes : PhonePe/PAYTM/Gpay no. **9629121300**

The total course fee is Rs.40000 (Before it was Rs.1,00,000/-) Course Fees can also be paid in Instalments, in 20 days interval. Max Instalments allowed is 4 instalments (excluding enrolment fee).

Visit: www.gururayarassociates.com OR www.facebook.com/gururayar1 or mail to gururayarassociates@gmail.com for further details.

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