

Project No. 1

Project Topic:

Types of Beams in Reinforced Concrete Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The project report and presentation should include the following items:

- 1- Photographs of different types of beams; simple beams, cantilever beams, and continuous beams, used either in reinforced concrete buildings or bridges.
- 2- Diagrams of different cross sections, supports and connections used for reinforced concrete beams in buildings or bridges.
- 3- Figures for Idealization of different beams with their supports and connections.
- 4- Figures of different type and shape of loads acting on beams and its idealization.
- 5- Sketches of typical shapes of internal forces (Bending moments and Shear forces).
- 6- Location and value of maximum deflection for some typical beams subjected to different types of loads (taken from text book)

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1- The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week.

Project No. 2

Project Topic:

Types of Beams in Steel Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The project report and presentation should include the following items:

- 1- Photographs of different types of beams; simple beams, cantilever beams, and continuous beams, used either in steel buildings or steel bridges.
- 2- Diagrams of different cross sections, supports and connections used for steel beams in buildings or bridges.
- 3- Figures for Idealization of different beams with their supports and connections.
- 4- Figures of different type and shape of loads acting on beams and its idealization.
- 5- Sketches of typical shapes of internal forces (Bending moments and Shear forces).
- 6- Location and value of maximum deflection for some typical beams subjected to different types of loads (taken from text book)

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1- The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 7- All above items should be covered by written text, illustrative figures and clear photos.
- 5- Deadline for report submission and presentation is during 10th week

Project No. 3

Project Topic:

Types of Frames in Reinforced Concrete Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1- Photographs of different types of frames; simple frames, multi-story frames, 2D and 3D frames used either in reinforced concrete buildings or bridges.
- 2- Diagrams of different cross sections, supports and connections used in reinforced concrete frames
- 3- Diagrams for different structural elements used in a frame structure, (Slab, secondary beams, girders, columns, etc..)
- 4- Figures for Idealization of frames with their supports and connections.
- 5- Figures of different type and shape of loads acting on frames and its idealization.
- 6- Sketches of typical shapes of internal forces (B.M, S.F. & N.F)
- 7- Brief description on Methods used to determine the frame deformations

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1-The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 4

Project Topic:

Types of Frames in Steel Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1-Photographs of different types of frames; simple frames, multi-story frames, 2D and 3D frames used either in steel buildings or bridges.
- 2-Diagrams of different cross sections, supports and connections used in steel frames
- 3-Diagrams for different structural elements used in a frame structure, (Slab, secondary beams, girders, columns, bracings etc..)
- 4- Figures for Idealization of frames with their supports and connections.
- 5-Figures of different type and shape of loads acting on frames and its idealization.
- 6- Sketches of typical shapes of internal forces (B.M, S.F. & N.F.)
- 7-Brief description on Methods used to determine the frame deformations

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1-The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 5

Project Topic:

Types of Trusses in Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1- Photographs of different types of trusses; two and three dimensional trusses used in buildings, roofs, bridges, and towers.
- 2- Photographs for different materials, different cross sections, different supports and connections used in trusses.
- 3- Figures for different structural elements used in a trussed structure.
- 4- Figures for Idealization of trusses, its supports and connections
- 5- Diagrams of typical shapes of loads acting on trusses and its idealization.
- 6- Typical shapes of main internal forces.
- 7- Brief description on methods used to determine the truss deformations

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1-The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 6

Project Topic:

Types of Cable Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1- Photographs of different types of cable structures; used in buildings, roofs, bridges, and towers.
- 2- Photographs of Different structural elements, cross sections used in a cable structure.
- 4- Photographs of different supports and connections used for cable structures.
- 5- Figures for Idealization of cable structures.
- 6- Diagrams of different type and shape of loads acting on cable structures and its idealization.
- 7- Sketches for typical shapes of internal forces.
- 8- Typical range of application of Cable structures

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1- The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 7

Project Topic:

Types of Arches in Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1- Photographs of different types of arches used in buildings, roofs, bridges.
- 2- Photographs of different structural elements, cross sections, supports and connections used in a cable structure.
- 3- Figures for Idealization of arched structures.
- 6- Diagrams of different type and shape of loads acting on arched structures and its idealization.
- 7- Sketches for typical shapes of internal forces.
- 8- Typical range of application of arched structures

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1- The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 8

Project Topic:

Space and Shell Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1-Photographs of different types of space and shell structures used in roofs.
- 2- Photographs showing different materials, different structural elements different supports and connections used for shell structures.
- 3- Diagrams of different type and shape of loads acting on shell structures and its idealization.
- 4- Typical shapes of internal forces.
- 5- Range of application of shell structures

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1-The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 9

Project Topic:

Type of Loads in Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1- Photographs of different types of loads, dead loads, live loads, wind loads, earthquake loads, hydrostatic loads, soil pressure.
- 2- Photographs and diagrams of moving loads in bridges and cranes
- 3- Description of the nature of each type of loads
- 4- Examples of different shapes of loads and how loads exist and act on structures
- 5- Some typical values of different type of loads.
- 6- Some typical load combinations used in design of structures
- 7- Effect of moving loads on beams, Influence lines, and maximum internal forces.

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1-The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 10

Project Topic:

Different Floor Systems used in Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1- Photographs of Different floor systems used in buildings; one way slabs and two way slabs.
- 2- Photographs showing the main structural elements used; slab, secondary beam, main beam and girder.
- 3- Figures of Shape of load distribution on different elements.
- 4- Figures showing How loads are transmitted to different elements.

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1-The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 11

Project Topic:

Stable , Unstable and Collapsed Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1- Equation of Equilibrium for beams, frames and trusses
- 2- Condition of stability for beams, frames and trusses
- 3- Photographs and figures for examples of stable, unstable and collapsed beams, frames and trusses
- 4- How to change an unstable structure to a stable structure
- 5- Reasons of structure failure and collapse. (Use photos)

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1-The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week

Project No. 12

Project Topic:

Statically Determinate and Indeterminate Structures

A group of 3 students are requested to collect data, prepare a report and a PowerPoint presentation for the above topic. The objectives of the project are to improve the students' skills for collecting data on a certain topic related to the Structural Analysis Course CE 361 and to improve their communication skills in writing reports and preparing PowerPoint presentations as well as to offer more understanding of Structural Engineering Systems and Fundamentals.

The report and presentation should include the following items:

- 1- Conditions of determinate and indeterminate structures
- 2- Advantages and disadvantages of determinate and indeterminate structures
- 3- Photographs of examples for determinate and indeterminate structures in practice
- 4- Effect of temperature and settlement in determinate and indeterminate structures from both practice and theory.

Project Guidelines

The report and PowerPoint presentation should be in the following format.

- 1-The report should not exceed 10 pages (A4 size), and the presentation should not exceed 15 slides.
- 2- The PowerPoint presentation will be presented by each student
- 3- The report and the presentation should include at least 10 indicated clear photos (5 photos taken by your own digital camera, 5 photos obtained from the internet)
- 4- Each photo should have a title and some information describing it.
- 5- All above items should be covered by written text, illustrative figures and clear photos.
- 6- Deadline for report submission and presentation is during 10th week