College Code: QA

BRILLIANT INSTITUTE OF ENGINEERING & TECHNOLOGY
(Approved by AICTE, New Delhi, Affiliated to JNTU-Hyderabad)
Abdullapur(V), Abdullapurmet (M), R.R. Dt. Hyderabad - 501505
Website: www.b-iet.ac.in, e-mail: principal@b-iet.ac.in

DEPARTMENT OF CIVIL ENGINEERING

Academic Year 2021 – 22

Course	**Structural Engineering -II**	Year / Semester	**III / II**
Topic	**Design of Tension Members**	Innovative Method Chosen	**Flipped Classroom**

Flipped Classroom:

Flipping the classroom is an inverting the classroom approach to teaching. In this approach, the traditional in-class teaching is "flipped" to better meet the needs of individual learners. Students gain control of the learning process through studying course material outside of class, using readings, pre-recorded video lectures. It helps the faculty/lecturer to redefine in-class activities and include homework problems and keep the students engaged in the content.

Details of the Implementation:

It Works

1. Before class: Students watch recorded lectures, audio–video lessons, or read study materials related to the **Design of tension members**, including types of tension members, modes of failure, gross area, net area, and design strength.
2. During class: Students participate in activities, group discussions, numerical problem-solving, and concept-based exercises. The teacher guides the students, clarifies doubts, and provides individual support, resulting in more interactive and practical learning.

It is useful

Students can learn the basic concepts of tension member design in steel structures at their own pace. More classroom time is available for discussion and doubt-clearing. It encourages active learning, better engagement, conceptual understanding, and application of design principles in structural engineering.

Example: A civil engineering teacher explains the design of tension members using a short video before the class, covering types of tension members, modes of failure, gross and net cross-sectional areas, and design strength. Students watch the video at home. The next day in class, they work in groups to solve numerical problems involving the design of tension members and bolted or welded connections, while the teacher guides them in determining the required cross-section, net effective area, and design strength and explains the practical

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application of tension members in steel trusses, roof structures, bridges, and industrial buildings.

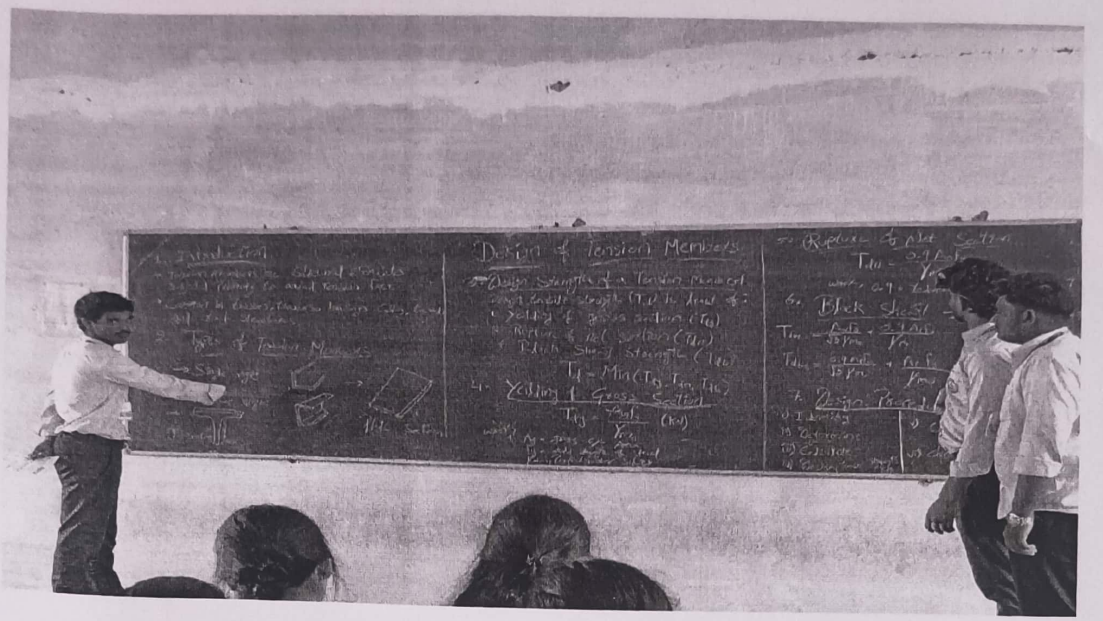


Figure 1 : Flipped Class Tension Members by 19QA1A0114 (G. Vamshi) 20QA5A0156 (V. Ravinder), 20QA5A0159(V. Sai Kumar)

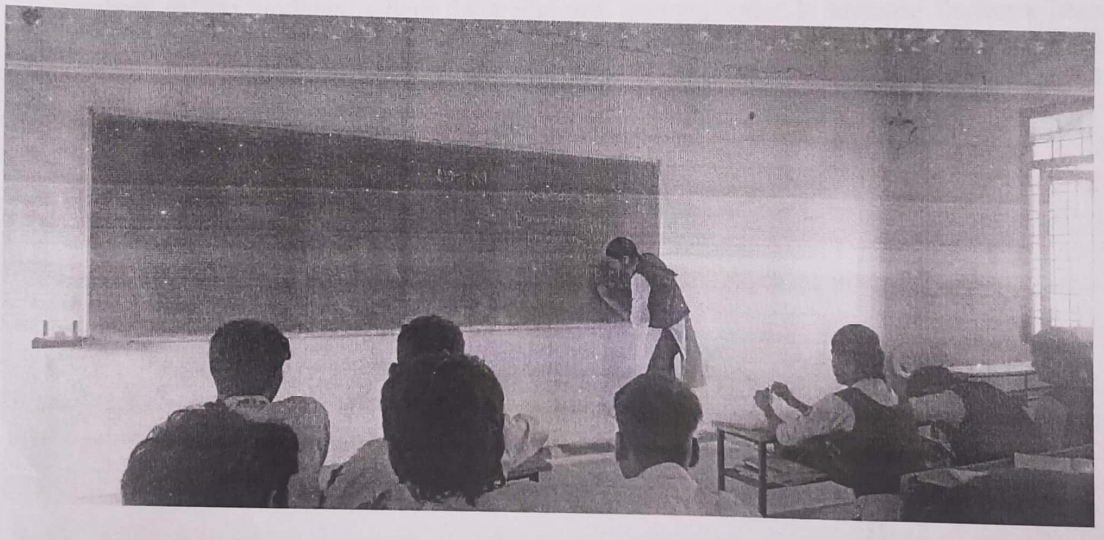


Figure 2: Flipped Class by 19QA1A0104 (B. Bhavana)

Coordinator

Head of the Department

Head of the Department
Department of Civil Engineering
Brilliant Institute of Engineering & Technology
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DEPARTMENT OF CIVIL ENGINEERING

Date: 17-03-2022

To
The Principal,
Brilliant Institute of Engineering and Technology,
Adbullapur (V & M) - 501505,
R. R. District, Hyderabad.

Respected Sir,

Sub: Seeking Permission – Innovative TLP – Req. – Reg.

* * *

We are hereby bringing to your kind notice that the department of Civil engineering department is going to conduct an innovative session i.e., flipped class room conducting by our faculty members to our students. where the traditional learning order is reversed Students learn the lesson before class. A technique where people share ideas freely without criticism to solve a problem or think creatively. We are scheduled the program on 29-03 -2022 at 2:05pm to 3:45pm to III year II semester. This will be a good knowledge sharing platform for students.

We are confident that you will continue to serve the institution diligently and will have a satisfying and rewarding career with the institution.

In this regard, we are requesting you kindly permit us to conduct the program to the students.

Thanking you sir.

Yours Sincerely,

Head of the Department

Head of the Department
Department of Civil Engineering
Brilliant Institute of Engineering & Technology
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DEPARTMENT OF CIVIL ENGINEERING

Date: 25-03-2022

Circular

This is to inform faculty members and students in the department of civil engineering that the department is going to conduct a flipped class room involving faculty along with students (In Structural Engineering-II on Design of Tension Members) on 29-03 -2022 between 2:05pm to 3:45 pm. This will be a good knowledge sharing platform for students' ideas and solutions through disciplined idea generator on this method. Hence, it is directed that all the students of III year II Semester and who are interested to participate enroll their names with concerned faculty on or before 28-03-2022.

Head of the Department

Head of the Department
Department of Civil Engineering
Institute of Engineering & Technology
(M), R.R. Dist., Hyderabad-501505

Copy to:

Circulate in all Civil classrooms.
Display in the all notice boards
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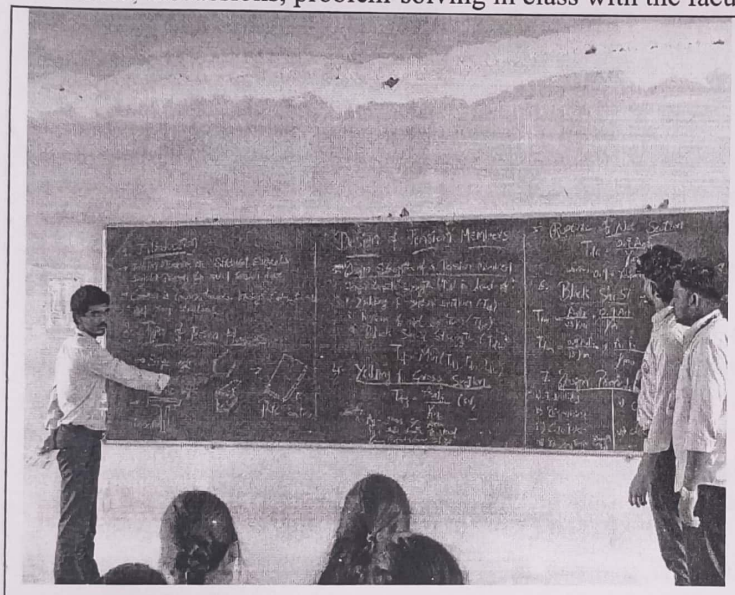
DEPARTMENT OF CIVIL ENGINEERING

Flipped classroom :

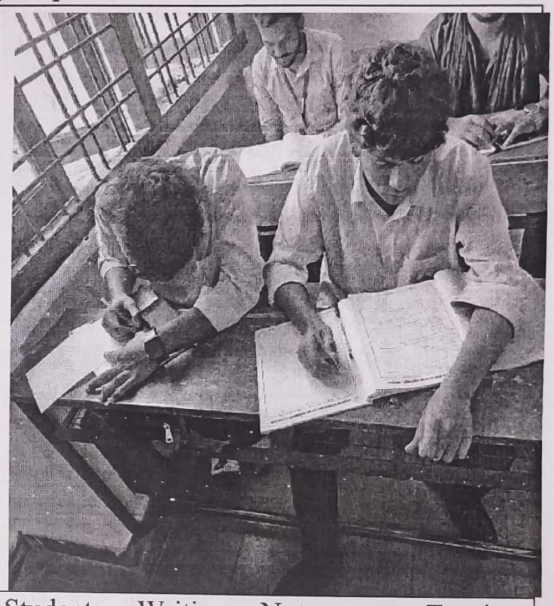
A flipped classroom is a modern teaching method where the traditional way of learning is reversed.

Explanation:

In a normal classroom, faculty teaches the lesson in class. Students do homework after class Students learn the lesson at home (through videos, presentations, readings), Students do activities, discussions, problem-solving in class with the faculty help.



19QA1A0104,19QA1A0114,20QA5A0156, 20QA5A0159



Students Writing Notes on Tension Members

It Works

1. Before class: Students watch recorded lectures, audio–video lessons, or read materials.
2. During class: Students do activities, group work, problem-solving, Teacher guides, clarifies doubts, and helps individually, more interactive and practical learning

It is useful

Students learn at their own pace, More time for discussion and doubt-clearing, encourages active learning, better engagement and understanding.

Example: A Structural Engineering faculty provides students with a video or learning material explaining the design principles of tension members. Students study the material before the class. During the next class, they work in groups to solve design problems of tension members, perform the necessary calculations, and determine the suitable member size while the faculty guides them, clarifies doubts, and provides suggestions.

Coordinator

Head of the Department

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DEPARTMENT OF CIVIL ENGINEERING

Summary Report

On

Flipped class room

The Department of Civil Engineering conducted a Flipped Classroom session on the topic **"Design of tension members"**. The main objective of this event was to enhance the communication skills, debate skills, and technical knowledge of students. The activity also helped students develop confidence in expressing and presenting their understanding of the subject.

The event was organized in the form of a group discussion on properties of fluid in Structural engineering -II, and their engineering applications. The session encouraged active participation and collaborative learning among students. It was mapped **to** Program Outcome (PO1, PO2, PO3) which focuses on effective communication and teamwork.

A large number of students actively participated in the event and shared their views and knowledge on the topic. On this occasion, **Dr. Shaik Rusthum, Principal**, motivated the students to take part in such academic activities and appreciated their enthusiasm. He congratulated the organizing committee for successfully conducting the event and advised the faculty members to organize more such interactive learning activities to inculcate confidence, leadership qualities, and technical competence among students.

The program concluded successfully with positive feedback from both students and faculty members. The flipped classroom approach proved to be an effective method for improving student engagement, knowledge sharing, and conceptual understanding of Fluid Mechanics.

The competitive spirit among the students. The total number of students participated 32.

Winner Notification

S.NO	Roll Number	Name Of The Student
1	19QA1A0104	B. Bhavana
2	19QA1A0114	G. Vamshi
3	20QA5A0156	V. Ravinder
4	20QA5A0159	V. Sai Kumar

Coordinator

Head of the Department

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