



## **SRI VENKATESWARA COLLEGE OF ENGINEERING**

(an Autonomous Institution affiliated to Anna University, Chennai)  
Pennalur, Sriperumbudur Tk – 602117

**Department of Civil Engineering**

**Anna University Sponsored Six Days Online FDTP**

**on**

**“CE8502 – STRUCTURAL ANALYSIS I”**

**(14<sup>th</sup>June to 19<sup>th</sup>June 2021)**

**Coordinator**

**Dr.R.Kumutha**

Professor and Head

Dept. of Civil Engineering

Sri Venkateswara College of Engineering

**Coordinator**

**Dr.R.Sathia**

Associate Professor

Dept. of Civil Engineering

Sri Venkateswara College of Engineering

## **ACKNOWLEDGEMENT**

Our sincere thanks to Dr. S. Ganesh Vaidyanathan, Principal, and Dr. M. Sivanandham, Secretary, Sri Venkateswara College of Engineering for granting us permission to apply for the Anna university Sponsored Faculty Development Programme. We are thankful to Anna University for giving this opportunity to conduct online FDTP for faculty members of affiliated institution at free of cost.

We are grateful to all the participants who showed interest and actively participated. We also thank them for all the positive feedback they have given.

We thank the department faculty who helped in conduct of this program. Above all, we are thankful to the God Almighty for the successful completion of the program.



**Dr. R. Kumutha, Coordinator,**



**Dr. R. Sathia, Coordinator.**

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## **INTRODUCTION**

### **ABOUT THE COLLEGE**

Sri Venkateswara College of Engineering (Autonomous), a premier self-financing engineering college was established in the year 1985 and is managed by Sri Venkateswara Educational and Health Trust. The college offers 11 B.E/B.Tech Degree Courses and 10 PG Courses in Engineering/ Technology. The courses are approved by AICTE and affiliated to Anna University, Chennai, The College attained autonomous status in the year 2016. The college is accredited by National Assessment and Accreditation Council (NAAC). The National Board of Accreditation has accredited many of the eligible programs. The college is an ISO 9001:2015 certified institution. The college is situated in serene environment about 37 Kms from Chennai and situated on the way of Chennai – Bangalore National Highway (NH4) at Pennalur, Sriperumbudur, in Kanchipuram district.

### **ABOUT THE DEPARTMENT**

The Department of Civil Engineering has started functioning from the year 2008, offering B.E. degree program in Civil Engineering with the sanctioned intake of 30. During the academic year 2013-2014 intake has been increased to 60. At present, the Department has ten faculty members having P.G. specialization in different areas of Civil Engineering such as Structural Engineering, Transportation Engineering, Construction Planning & Management, Water Resources Engineering, Geo-Technical, Engineering & Environmental Engineering. The Department has excellent infrastructure in terms of well-established Laboratories and class room facilities. The vision of the department is to become a department of excellence in Civil Engineering education producing globally competent civil engineers with an emphasis on research for the benefit of the industry and society.

### **ABOUT CFD, ANNA UNIVERSITY**

The Centre for Faculty Development started by Anna University conducts faculty development training programmes to cater to the needs of faculty members. The Centre trains the teachers to plan and prepare the lessons, understand the subject contents and improve the teaching quality. These programmes are conducted during the summer / Winter Vacations to enable the teachers to participate and benefit.

## **TARGET AUDIENCE**

Faculty Members of Anna University Affiliated institutions.

## **OBJECTIVES OF FDTP**

The purpose of this Faculty Development Training Program (FDTP) is to provide wide exposure and enough confidence for the f a c u l t y m e m b e r s to teach the course CE8502 - Structural Analysis I. This course will also be useful for the faculty members to upgrade their knowledge in the area of Structural Analysis.

## **CONTENTS OF THE FDTP**

1. Strain Energy Method
2. Slope Deflection Method
3. Moment Distribution Method
4. Flexibility Matrix Method
5. Stiffness Matrix Method

# BROCHURE

## Objectives of FDTP

The purpose of this Faculty Development Training Program (FDTP) is to provide wide exposure and enough confidence for the faculty members to teach the course CE8502 - Structural Analysis I. This course will also be useful for the faculty members to upgrade their knowledge in the area of Structural Analysis.

## Contents of FDTP

1. Strain Energy Method
2. Slope Deflection Method
3. Moment Distribution Method
4. Flexibility Matrix Method
5. Stiffness Matrix Method
6. E-Content Development in Higher Education
7. Open Educational Resources

## Eligibility and Guidelines

Faculty Members working in Affiliated Engineering Colleges are only eligible to attend this online Faculty Development Training Program. There is no registration fee for the program. 100% Attendance is compulsory to issue the Certificate. A test shall be conducted at the 6th day of the programme. The Certificate will be issued only for those who have got more than 75% marks in the test.

## Registration Details

Faculty members interested to attend this Online FDTP need to make compulsory online registration through the google form via link: <https://forms.gle/QgG4rbjGY6ofDHU57>

Shortlisted candidates will be informed through email on or before 8<sup>th</sup> June 2021.

## Resource Persons

1. **Dr.K.S.Babu Narayan**  
Professor  
Department of Civil Engineering  
NIT Karnataka, Surathkal
2. **Dr.R.Senthil**  
Professor & Head  
Department of Civil Engineering  
CEG Campus, Anna University
3. **Dr.S.Nagan**  
Professor  
Department of Civil Engg.  
Thiagarajar College of Engineering  
Madurai
4. **Dr.P.Malliga**  
Associate Professor  
Department of CSE  
NITTR, Chennai
5. **Dr. G.Tamizharasi**  
Assistant Professor  
Department of Civil Engineering  
SVNIT Warangal, Surat
6. **Dr.S.Praveenkumar**  
Assistant Professor (Sr. Gr.)  
Department of Civil Engineering  
PSG College of Technology Coimbatore
7. **Dr.K.Aarthi**  
Assistant Professor  
Department of Civil Engineering  
Alagappa Chettiar College of Engineering  
and Technology, Karaikudi
8. **Dr. R. Kumutha**  
Professor & Head / Civil Engineering  
SVCE, Sripurumbudur
9. **Dr. R. Sathia**  
Associate Professor / Civil Engineering  
SVCE, Sripurumbudur

Online - Six Days FDTP  
ON

CE8502 - Structural Analysis I  
14<sup>th</sup> June to 19<sup>th</sup> June 2021

Co-ordinators

**Dr.R.Kumutha**  
Professor & Head/Civil Engg.

**Dr.R.Sathia**  
Associate Professor /Civil Engg.



Sponsored by

Centre for Faculty Development  
Anna University  
Chennai - 25

&



Organized by  
Department of Civil Engineering  
Sri Venkateswara College of Engineering  
(An Autonomous Institution)  
Sripurumbudur -602 117

### ABOUT THE COLLEGE

Sri Venkateswara College of Engineering (Autonomous), a premier self-financing engineering college was established in the year 1985 and is managed by Sri Venkateswara Educational and Health Trust. The college offers 11 B.E/B.Tech Degree Courses and 8 PG Courses in Engineering/ Technology. The courses are approved by AICTE and affiliated to Anna University, Chennai. The College attained autonomous status in the year 2016. The college is accredited by National Assessment and Accreditation Council (NAAC). The National Board of Accreditation has accredited many of the eligible programs. The college is an ISO 9001:2015 certified institution. The college is situated in serene environment about 37 Kms from Chennai and situated on the way of Chennai – Bangalore National Highway (NH4) at Pennalur, Sriperumbudur, in Kanchipuram district.

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The vision of the department is to become a department of excellence in Civil Engineering education and research producing globally competent civil engineers to serve the industry and society.

### ABOUT CFD, ANNA UNIVERSITY

The Centre for Faculty Development started by Anna University conducts faculty development training programmes to cater to the needs of faculty members. The Centre trains the teachers to plan and prepare the lessons, understand the subject contents and improve the teaching quality. These programmes are conducted during the Summer / Winter Vacations to enable the teachers to participate and benefit.

### Advisory Committee

#### Dr. M. Sivanandham

Secretary  
Sri Venkateswara Educational & Health Trust

#### Dr. S. Ganesh Vaidyanathan

Principal  
Sri Venkateswara College of Engineering

### Contact Details of Co-ordinators

#### Dr. R. Kumutha

Professor & Head/ Civil Engineering  
Sri Venkateswara College of Engineering  
Sriperumbudur  
Mobile No: 98941 25626  
Email: [kumuthar@svce.ac.in](mailto:kumuthar@svce.ac.in)

#### Dr. R. Sathia

Associate Professor /Civil Engineering  
Sri Venkateswara College of Engineering  
Sriperumbudur  
Mobile No: 97909 49768  
Email: [sathiamunish@svce.ac.in](mailto:sathiamunish@svce.ac.in)

### ORGANIZING COMMITTEE

**CHIEF PATRON** : Vice Chancellor  
Anna University

**PATRON** : Dr. Raneer Vadamuthu  
Registrar  
Anna University

**CHAIR** : Dr. D.Sridharan  
Director, CFD

Dr. V. Adaikkalam  
Addl Director, CFD

**CO-CHAIR** : Dr.S.Ganesh Vaidyanathan  
Principal  
SVCE. Sriperumbudur

Dr.R.Kumutha  
HoD/Civil Engineering  
SVCE. Sriperumbudur

**Co-ordinators** : Dr.R.Kumutha  
HoD/Civil Engineering  
SVCE. Sriperumbudur

Dr.R.Sathia  
Asso.Prof.Civil Engineering  
SVCE. Sriperumbudur

### Organizing Department

Department of Civil Engineering  
Sri Venkateswara College of Engineering  
(An autonomous Institution)  
Sriperumbudur – 602 117

### IMPORTANT DATES:

Submission of Application : 03.06.2021  
Intimation of Selection : 8.06 2021  
Confirmation by Participants : 10.06 2021

# SCHEDULE



**SRI VENKATESWARA COLLEGE OF ENGINEERING**  
**Department of Civil Engineering**  
**Anna University Sponsored Six Days Online FDP on**  
**“CE8502 – STRUCTURAL ANALYSIS I”**  
 (14<sup>th</sup> June to 19<sup>th</sup> June 2021)  
**PROGRAMME SCHEDULE**



Date / Day	09:00 am to 10:30 am	10:45 am to 12:15 pm		01:30 pm to 03:00 pm	03:15 pm to 04:45 pm
14.06.2021 (Monday)	Session 1	Session 2		Session 3	Session 4
	9.00 to 9.30 am <b>About FDP and Instruction to Participants</b> Dr.R.Kumutha,Co-Ordinator  9.30 to 10.30 am <b>INAUGURAL ADDRESS</b>  <b>Dr.R.Senthil</b> Professor & Head Department of Civil Engineering CEG Campus, Anna University	Topic: Unit 1- Strain Energy Method  Determination of Static and Kinematic Indeterminacies  <b>Dr.K.S,Babu Narayan</b> Professor Department of Civil Engineering NIT Karnataka, Surathkal	Lunch	Topic: Unit 1- Strain Energy Method  Analysis of continuous beams, plane frames and Trusses  <b>Dr.K.S,Babu Narayan</b> Professor Department of Civil Engineering NIT Karnataka, Surathkal	Topic: Unit 2 – Slope Deflection Method  Slope deflection equations & Equilibrium conditions  <b>Dr.S.Praveenkumar</b> Assistant Professor (Sr,Grade) Department of Civil Engineering PSG College of Technology Coimbatore
15.06.2021 (Tuesday)	Session 1	Session 2		Session 3	Session 4
	Topic: Unit 2 – Slope Deflection Method  Analysis of continuous beams and rigid frames, Analysis of rigid frames with inclined members  <b>Dr.S.Praveenkumar</b> Assistant Professor (Sr,Gr) Department of Civil Engineering PSG College of Technology	Topic: Unit 2 – Slope Deflection Method  Support settlements, Symmetric frames with symmetric and skew-symmetric loadings.  <b>Dr.S.Praveenkumar</b> Assistant Professor (Sr,Grade) Department of Civil Engineering PSG College of Technology	Lunch	Topic: Unit 2 – Slope Deflection Method <b>Tutorial</b>  <b>Dr.S.Praveenkumar</b> Assistant Professor (Sr,Grade) Department of Civil Engineering PSG College of Technology	Quiz/Tutorial  <b>Dr.R.Sathia</b> Associate Professor Department of Civil Engineering SVCE, Sriperumbudur
16.06.2021 (Wednesday)	Session 1	Session 2		Session 3	Session 4
	Introduction to Outcome Based Education (OBE)  <b>Dr.R.Kumutha</b> Professor & Head Department of Civil Engineering SVCE, Sriperumbudur	Topic: Unit 3 – Moment Distribution Method  Stiffness and carry over factors – Distribution and carryover of moments  <b>Dr. G.Tamizharasi</b> Assistant Professor Department of Civil Engineering, SVNIT, Surat	Lunch	Topic: Unit 3 – Moment Distribution Method  Analysis of continuous Beams (with and without settlement of supports) & Problems  <b>Dr. G.Tamizharasi</b> Assistant Professor Department of Civil Engineering, SVNIT, Surat	Quiz/Tutorial  <b>Dr.R.Sathia</b> Associate Professor Department of Civil Engineering SVCE, Sriperumbudur



Date / Day	09:00 am to 10:30 am	10:45 am to 12:15 pm	01:30 pm to 03:00 pm	03:15 pm to 04:45 pm
17.06.2021 (Thursday)	<b>Session 1</b> <b>Topic: Unit 3 – Moment Distribution Method</b> Analysis of Frames without sway  <b>Dr. S. Nagan</b> Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai.	<b>Session 2</b> <b>Topic: Unit 3 – Moment Distribution Method</b> Analysis of Frames with sway  <b>Dr. S. Nagan</b> Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai.	<b>Session 3</b> <b>Topic: Unit 4 -Flexibility Method</b> Primary structures - Compatibility conditions - Formation of flexibility matrices  <b>Dr.K.Aarthi</b> Assistant Professor Department of Civil Engineering Alagappa Chettiar College of Engineering and Technology Karaikudi.	<b>Session 4</b> <b>Topic: Unit 4 -Flexibility Method</b> Analysis of continuous beams and rigid jointed plane frames by direct flexibility approach  <b>Dr.K.Aarthi</b> Assistant Professor Department of Civil Engineering Alagappa Chettiar College of Engineering and Technology Karaikudi
	Break			
18.06.2021 (Friday)	<b>Session 1</b> <b>Topic: Unit 4 -Flexibility Method</b> Analysis of indeterminate pin-jointed plane frames by direct flexibility approach  <b>Dr.K.Aarthi</b> Assistant Professor Department of Civil Engineering Alagappa Chettiar College of Engineering and Technology Karaikudi	<b>Session 2</b> <b>Topic: Unit 5 – Stiffness method</b> Restrained structure –Formation of stiffness matrices - equilibrium condition  <b>Dr. S. Nagan</b> Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai.	<b>Session 3</b> <b>Topic: Unit 5 – Stiffness method</b> Analysis of Continuous Beams and rigid frames by direct stiffness method  <b>Dr. S. Nagan</b> Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai.	<b>Session 4</b> <b>Topic: Unit 5 – Stiffness method</b> Analysis of Pin-jointed plane frames by direct stiffness method  <b>Dr. S. Nagan</b> Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai.
	Break			
19.06.2021 (Saturday)	<b>Session 1</b> <b>E-Content Development in Higher Education</b>  <b>Dr.P.Malliga</b> Associate Professor Department of Computer Science & Engineering NITTTR, Chennai	<b>Session 2</b> <b>Open Educational Resources</b>  <b>Dr.P.Malliga</b> Associate Professor Department of Computer Science & Engineering NITTTR, Chennai	<b>Session 3</b> <b>TEST</b>  <b>Dr.R.Kumutha</b> Professor & Head Department of Civil Engineering, SVCE <b>Dr.R.Sathia</b> Associate Professor Department of Civil Engineering, SVCE	<b>Session 4</b> <b>Feedback and Valedictory Session</b>  <b>Dr.R.Kumutha</b> Professor & Head Department of Civil Engineering, SVCE <b>Dr.R.Sathia</b> Associate Professor Department of Civil Engineering, SVCE
	Break			

### MEETING LINKS FOR SESSIONS

Date	Session	Google meet Link
14.06.2021 Monday	1	<a href="https://meet.google.com/sks-rheq-xth">https://meet.google.com/sks-rheq-xth</a>
	2	<a href="https://meet.google.com/bbg-ujpo-drh">https://meet.google.com/bbg-ujpo-drh</a>
	3	<a href="https://meet.google.com/jzq-itcm-npz">https://meet.google.com/jzq-itcm-npz</a>
	4	<a href="https://meet.google.com/gmm-nyqu-xes">https://meet.google.com/gmm-nyqu-xes</a>
15.06.2021 Tuesday	1	<a href="https://meet.google.com/xsd-vjrz-juo">https://meet.google.com/xsd-vjrz-juo</a>
	2	<a href="https://meet.google.com/hve-moko-xkm">https://meet.google.com/hve-moko-xkm</a>
	3	<a href="https://meet.google.com/fpv-nyye-odg">https://meet.google.com/fpv-nyye-odg</a>
	4	<a href="https://meet.google.com/tsj-kihp-vpb">https://meet.google.com/tsj-kihp-vpb</a>
16.06.2021 Wednesday	1	<a href="https://meet.google.com/stj-vejr-ihf">https://meet.google.com/stj-vejr-ihf</a>
	2	<a href="https://meet.google.com/qpx-cqhb-qmt">https://meet.google.com/qpx-cqhb-qmt</a>
	3	<a href="https://meet.google.com/czz-sogm-ark">https://meet.google.com/czz-sogm-ark</a>
	4	<a href="https://meet.google.com/ugv-whps-ppv">https://meet.google.com/ugv-whps-ppv</a>

Date	Session	Google meet Link
17.06.2021 Thursday	1	<a href="https://meet.google.com/koa-isov-rfk">https://meet.google.com/koa-isov-rfk</a>
	2	<a href="https://meet.google.com/ijt-epzi-vqd">https://meet.google.com/ijt-epzi-vqd</a>
	3	<a href="https://meet.google.com/xro-sqxf-bac">https://meet.google.com/xro-sqxf-bac</a>
	4	<a href="https://meet.google.com/das-zuhi-mpn">https://meet.google.com/das-zuhi-mpn</a>
18.06.2021 Friday	1	<a href="https://meet.google.com/zru-qtr-nry">https://meet.google.com/zru-qtr-nry</a>
	2	<a href="https://meet.google.com/ktd-aqpn-dug">https://meet.google.com/ktd-aqpn-dug</a>
	3	<a href="https://meet.google.com/obx-oijb-raf">https://meet.google.com/obx-oijb-raf</a>
	4	<a href="https://meet.google.com/xer-briq-akj">https://meet.google.com/xer-briq-akj</a>
19.06.2021 Saturday	1	<a href="https://meet.google.com/xuo-bwdr-vox">https://meet.google.com/xuo-bwdr-vox</a>
	2	<a href="https://meet.google.com/fkn-xquz-pte">https://meet.google.com/fkn-xquz-pte</a>
	3	<a href="https://meet.google.com/spy-bffm-vij">https://meet.google.com/spy-bffm-vij</a>
	4	<a href="https://meet.google.com/qds-hbef-bat">https://meet.google.com/qds-hbef-bat</a>

**Coordinators:**

**Dr.R.Kumutha**

**Professor & Head**

Department of Civil Engineering

Sri Venkateswara College of Engineering

Sriperumbudur

Mobile: 9894125626

Email: kumuthar@svce.ac.in

**Dr.R.Sathia**

**Associate Professor**

Department of Civil Engineering

Sri Venkateswara College of Engineering

Sriperumbudur

Mobile: 9790949768

Email: sathiamunish@svce.ac.in

## **SPEAKERS' PROFILES**



**Dr.R.Senthil** is currently, Head of the Division of Structural Engineering, Department of Civil Engineering, College of Engineering Guindy, Anna University. He has 19 years of teaching experience and 5 years of industrial experience in Design standardization, Research and Development. Dr.R.Senthil got his bachelor degree (B.E) on (Civil & Structural Engineering) from Annamalai University, Chidambaram and his masters (M.E) (Structural Engineering) from Annamalai University, Chidambaram. Then he obtained his doctorate (Ph.D) from Anna university in the year 2002.

His research contribution is, totally 13 scholars has been awarded PhD and 9 scholars are pursuing PhD under his guidance. He has published 24 international journal 13 national journal, 33 national conference and 10 international conferences. He has also organized seminar, workshop, conferences and training program at national and international level. He has been awarded an 'ACTIVE CONSULTANT AWARD' in the year 2012 for the contribution in the consultancy works by Anna University

He has authored books and contributed chapters to Guidelines for Retrofitting of Buildings, Government of Tamil Nadu, July 2006, Steel in Construction 2000, Ministry of Steel, New Delhi and Teaching Resource for Structural Steel Design, 2000 Ministry of Steel, and New Delhi. He is the member of Professional Bodies such as The Institution of Engineers (India), The Institution of Engineers (India). The Indian Society for Technical Education, Indian Concrete Institute, Association of Consulting Civil Engineers, International Centre for Fibre Reinforced Concrete Composites, The Institution of Engineers (India), Indian Society for Wind Engineering.



Dr. K. S. Babu Narayan is a Professor at the Department of Civil Engineering National Institute of Technology Karnataka, Surathkal. Dr. K. Babu Narayan's current research interests are Structural Analysis and Design (RCC, PSC and Steel) Structural Optimization Math Modelling Unsaturated Soil Mechanics. Eight scholars have completed Ph.D and 05 students are pursuing Ph.D under his guidance. He has delivered many invited talks in India and Abroad. He was a visiting professor at Kumamoto University, Japan, during 2006-12.

He has received various awards such as ULTRATECH outstanding concrete structure award. SAMAGA CIVIL ENGINEER award in 2007 by the Institution of Engineers. The Association of Consulting Civil Engineers, Engineer's Day-2011 honor - Eminent Engineer. ACC Cement's outstanding constructor award – 2016. ACCE(I) foundation day LIFETIME ACHIEVEMENT AWARD - 2018. Ultratech-ACCE(I) LIFETIME ACHIEVEMENT AWARD-2020. He has served as a Technical Consultant & Advisor to The ACC Help Center and Birla Super. Technical Committee Head & Co-Ordinator of Dakshina Kannada Nirmiti Kendra. B. R. Currently he is the President of Mangalore chapter of Indian association for structural rehabilitation and hon. secretary of Institution of Engineers, Mangalore local center.

He is a fellow Member of the Indian concrete Institute, Indian association of structural engineers, Life Member of Asian Center for Engineering Computations & Software, (ACECOMS), Asian Institute of Technology, Bangkok. He is the Lead author of Deconstruction Manual.



Dr. S.Praveenkumar obtained his BE Civil Engineering with Best outgoing student award from Sri Krishna college of Technology, ME Computer Methods and application in Structural Engineering from Coimbatore Institute of Technology, Coimbatore. He completed PhD in civil engineering at Anna University, Chennai.

He is recognized as supervisor for guiding PhD scholars of Anna University under faculty of Civil Engineering in the areas of Concrete Technology, Materials Characterization and Structural Engineering. He is currently guiding one PhD scholar (Parttime) under Anna University, Chennai. He has published more than 15 papers in Scopus indexed journals as well as Journals listed in annexure-1 of Anna University with high impact factor. He has presented 15 papers in national and international conference organized by reputed institutions like IITs, NITs, Research labs etc.

He is the life time member of professional bodies such as Institution of Engineers, Indian Society for Technical education, Indian Concrete Institute, International Association of Engineers, Indian Society for Construction Materials and Structures, International Association for Automation and Robotics in construction, Indian Association for Computational Mechanics, Indian Association for Structural Engineering.

He is institutional in setting up a laboratory named “Advanced Concrete Research Laboratory (ACRL)” at PSG College of Technology, Coimbatore with advanced equipment’s to study the behavior of construction materials with respect to field applications.



Dr. R.Kumutha , Professor and Head , Department of Civil engineering , completed her B.E and M.E from Thiagarajar College of engineering Madurai. She has 21 years of teaching experience as out of which 15 years of PG Teaching,11 years of Administration as Dean & Head of the Department for 10 Years in Autonomous Institutions. She obtained her PhD from Anna University.

Two scholars has obtained PhD and 2 Ph.D scholars are pursuingPhD under her guidance. She has published 57 International / National Journals out of which 24 Journal Publications are Scopus indexed with 298 Citations and H index of 8 and 10 Journal Publications are Web of Science indexed with 155 Citation and H index of 4.

Received National Award for Best Women Engineering College Teacher for the year 2018 from ISTE, New Delhi. Received State Award for Best Engineering College Teacher for the year 2016 from ISTE, Tamilnadu& Pondicherry Section. Received Best Guide Award from Entrepreneurs Council of India in National level Paper Presentation contest for the paper titled “Heat Resistive Paints” in the year 2016. Received National Award for Innovative research in Engineering & Technology for the year 2014 from ISTE, New Delhi. Recipient of AICTE Career Award for Young Teachers in the year 2012.

She has received funds of about Rs.40 Lakhs under various schemes from agencies such as DST, UGC, AICTE, TNSCST, ISTE, AICTE-ATAL, Anna University etc. She has delivered lectures and chaired manytechnical sessions in the international conferences.She has Organized many sponsored workshop, conferences and FDP. Her Biographical profile has been included in Marquis who’s who in the World 2009. Membership in Professional Societies: Professional Engineer in Board of Registration of Professional Engineer,Life Member of ICI,Member of Institution of Engineers member in ISTE and Member of INSDA



Dr. S.Nagan is currently a professor at Thiagarajar College of Engineering Madurai. He completed B.E and M.E (structural Engineering) from Thiagarajar college of Engineering, Madurai. He completed PhD from Madurai kamarajar university in the year 2002. He has totally 2 years of teaching experience.

17 scholars have completed PhD under his guidance and 9 students are undergoing PhD. He has done many collaborative projects for AICTE, DST worth 46 Lakhs. His research work has been published in many international and national journals. He has also presented and chaired session in several international conferences.

Dr.Nagan has authored many books. He is a life time member of several professional bodies such as Indian Society for Technical Education and International Society for Environmental Protection. To his credit he has received best ISTE faculty advisor, ISTE New Delhi and has received fellowship in INAE



Dr. G. Tamizharasi is an Assistant Professor, Department of Civil Engineering, Sardar Vallabhbhai National Institute of Technology, Surat – 375 007, Gujarat, India. She has done B.Tech. (Civil Engineering) from Pondicherry Engineering College, M.Tech. (Structural Engineering) National Institute of Technology Karnataka, Surathkal and Ph.D. from Indian Institute of Technology Madras.

Her areas of research interests are Earthquake Engineering, Structural Dynamics and Design of Reinforced Concrete Structures. She has published 9 papers in National / International Conference Proceedings / Journals.

She has received Gold Medal for securing highest Cumulative Grade Point Average in M.Tech. (Structural Engineering) Program and K. Doshi Memorial Prize for being meritorious among all branches of final year B.Tech. Program during 2009–10, Pondicherry Engineering College, 2010





Dr.K.Aarthi is currently an Assistant Professor AlagappaChettiar Govt College of Engineering and Technology. She obtained her B.E from Madurai Kamaraj University and M.E (Structural Engineering) from Anna University and PhD (Structural Engineering) from Anna University

She has a total of 19 years' experience in Teaching. 4 students are pursuing PhD under her guidance. Her area of Specialization includes Structural Engineering, Concrete Technology.She has published around 67 papers in National and International Journals and presented several papers in international and national conferences.



Dr. P. Malliga has around 30 years of teaching, training, and research experiences. At present she is working as Associate Professor, Dept of Computer Science and Engineering. She is heading the Centre for Educational Media and Technology, NITTTR, Chennai.

Her academic qualifications are B.E. (Computer Science & Engg.) from University of Madras, M.S. (Software Systems) from BITS, Pilani, M.S. (by Research) from Anna University and Ph.D from University of Madras. Her areas of interest are Data Mining, Cloud computing, Technology enabled Teaching and Learning, Instructional Design, E-Learning and OER, Immersive Technologies. Twenty-six papers were presented and published in the area of Computer Science & Education in National & International Conferences and in International Journals.

Her major contributions are Resource Person for more than 350 short term courses in Computer Science related areas and Coordinated 250 Short term Programmes in Computer Science areas. Resource Person for long term programme viz., – PGDTCA, B.Tech Ed, M.Tech (HRD) and Overseas Teachers. Coordinated six International Programmes for Overseas Teacher on “Educational Media Production for E-learning” and “Instructional Design for E-Learning” Trained 140 Bangladesh Teachers and Administrators in ICT and Web designing. Team Member in Development of 10 CBTs by Computer Centre, NITTTR. Produced several Educational Video Programs in Computer Science & Engg. Offered two SWAYAM MOOC courses – E-content Development, OER for Empowering Teachers and coordinated AICTE\_NITTT Module 1. Co-coordinator for SWAYAM MOOC for Teacher Training Courses, NITTTR Chennai sponsored by MHRD, Govt. of India.

## LIST OF PARTICIPANTS

S.No.	Name of the Participant	Designation	Department	College Name with address
1.	NANDAKUMAR.D	AP	Civil Engineering	Sona College of Technology, Salem – 636 005
2.	V.J. VEDHANAYAGHI	AP	Civil Engineering	Rajalakshmi Engineering College, Chennai – 602 105
3.	M MUTHURAJA	AP	Civil Engineering	Aalim Muhammed Salegh College of Engineering, Chennai – 600 055
4.	RAJIV GANDHI N	AP	Civil Engineering	Prince Shri Venkateshwara Padmavathy Engineering College, Chennai - 600127
5.	K. RANJITHA	AP	Civil Engineering	P. S. R Engineering College, Sivakasi – 626 140
6.	PARTHIBAN A	AP	Civil Engineering	Arunai Engineering College, Tiruvannamalai – 606 603
7.	ANBARASAN.S	AP	Architecture	Marg Institute of Design and Architecture Swarnabhoomi, Swarnabhoomi - 603 305
8.	PADMA RANI R	AP	Civil Engineering	Sri Bharathi Engineering College for Women, Kaikkuruchi – 622 303
9.	R VINODHKUMAR	AP	Civil Engineering	Meenakshi College of Engineering, Chennai – 600 078
10.	PREMKUMAR S	AP	Civil Engineering	Rajalakshmi Engineering College, Chennai – 602 105
11.	KARTHICK R	AP	Civil Engineering	SRM Valliammai Engineering College, Kattankulathur – 603 203
12.	R PARTHASAARATHI	AP	Civil Engineering	Hindusthan College of Engineering and Technology, Coimbatore – 641 032
13.	S SOUTHAMIRAJAN	AP	Civil Engineering	Kongunadu College of Engineering and Technology, Tottiyam - 621 215
14.	I MOHAMMEDRAFI	AP	Civil Engineering	P A College of Engineering and Technology, Pollachi – 642 002
15.	KANNADASAN B	AP	Civil Engineering	BSA Crescent Institute of Science and Technology, Chennai – 600 048
16.	RIYAS PR	AP	Civil Engineering	Dhaanish Ahmed Institute of Technology, Coimbatore – 641 105
17.	GOKULNATH N	AP	Civil	Sri Ranganathar Institute of Engineering and

			Engineering	Technology, Coimbatore – 641 110
18.	S. RAMESH	AP	Civil Engineering	P.B. College of Engineering, Chennai – 602 117
19.	KARTHIKKUMAR S	AP	Civil Engineering	Selvam College of Technology, Namakkal – 637 003
20.	D.DHARANI	AP	Civil Engineering	Velalar College of Engineering and Technology, Erode – 638 012
21.	SAMEEM SUHA M	AP	Civil Engineering	Thamirabharani Engineering College, Tirunelveli - 627358
22.	MARIA MONISHA L	AP	Civil Engineering	Prince Shri Venkateshwara Padmavathy Engineering College, Chennai - 600127
23.	P. VINODHKUMAR	AP	Civil Engineering	Meenakshi College of Engineering, Chennai - 600127
24.	DIVYA T	AP	Civil Engineering	Annapoorana Engineering College, Salem – 636 308
25.	ARUNRAJ CHRISTADOSS J	AP	Civil Engineering	SRM Valliammai Engineering College, Kattankulathur – 603 203
26.	T. S. NAWINA	AP	Civil Engineering	Vivekananda College of Technology for Women, Tiruchengode – 637 205
27.	ANBARASI S	AP	Civil Engineering	Sudharsan Engineering College, Pudukkottai - 622501
28.	T. SWEDHA	AP	Civil Engineering	SRM Valliammai Engineering College, Kattankulathur – 603 203
29.	SURESH.S	AP	Civil Engineering	Velalar College of Engineering and Technology, Erode – 638 012
30.	SILPA.N	AP	Civil Engineering	Annapoorana Engineering College, Salem – 636 308
31.	RAJA M A	AP	Civil Engineering	Thamirabharani Engineering College, Tirunelveli - 627358
32.	DEEPAK M	AP	Civil Engineering	Amrita College of Engineering and Technology, Nagercoil – 629 901
33.	S. SHARMILA	AP	Civil Engineering	Hindustan Institute of Technology and Science, Chennai – 603 103
34.	KANIMOZHI. S	AP	Civil Engineering	Jayalakshmi Institute of Technology, Thoppur – 636 352
35.	DENNIS FLORA P	AP	Civil Engineering	Sri Bharathi Engineering College for Women, Pudukkottai-622 303

36.	C.SANTHOSH KUMAR	AP	Civil Engineering	Prince Shri Venkateshwara Padmavathy Engineering College, Chennai - 600127
37.	A. VIJAY VIGNESH	AP	Civil Engineering	Sri Venkateswara College of Engineering, Sriperumbudur – 602 117
38.	P. PRABHU	Lecturer	Civil Engineering	Sree Narayana Guru Polytechnic College, Coimbatore - 641 011
39.	PA. SURIYA	AP - II	Civil Engineering	AarupadaiVeedu Institute of Technology, Chennai – 603 104
40.	Dr.M.VEERAPATHRAN	AP (SG)	Civil Engineering	Dr.N.G.P. Institute of Technology, Coimbatore – 641 048
41.	SUJAATHA A	Asso Prof	Civil Engineering	Sri Sairam Engineering College, Chennai – 600 044
42.	PAMILA R	Asso Prof	Civil Engineering	Sri Sairam Engineering College, Chennai – 600 044
43.	R.M. KARTHIKEYAN	Asso Prof	Civil Engineering	SNS College of Technology, Coimbatore – 641 035
44.	Dr.UMA MAGUESVARI M	Asso Prof	Civil Engineering	Rajalakshmi Engineering College, Chennai – 602 105
45.	Dr.P. MUTHUPRIYA	Prof	Civil Engineering	Dr.N.G.P. Institute of Technology, Coimbatore – 641 048
46.	Dr.K. VIJAI	Prof	Civil Engineering	St. Joseph's College of Engineering, Chennai – 600 119
47.	B. MUTHURAMU	AP	Civil Engineering	PSN College of Engineering and Technology, Tirunelveli-627152
48.	VINOTH KUMAR N	AP	Civil Engineering	SRM Valiammai Engineering College, Chennai

## **SESSION DETAILS**

### **INAUGURATION**

The Anna University sponsored online FDTP programme on “CE8502 - Structural Analysis I” was inaugurated on 14<sup>th</sup> June at 9:30 am.

Dr. R. Kumutha, Professor and Head, Department of Civil Engineering, SriVenkateswara College of Engineering and also the coordinator of the program welcomed the participants. A brief introduction about the College and department was given. She thanked the Principal for permitting her to apply and Anna University to approve the same. She also thanked all the speakers who had given acceptance for the program.

The schedule for the program was briefed. Instructions were given to the participants about the attendance and assessment. Dr. R. Kumutha, Coordinator & HOD delivered the welcome address and gave instructions to the participants about the FDTP program.

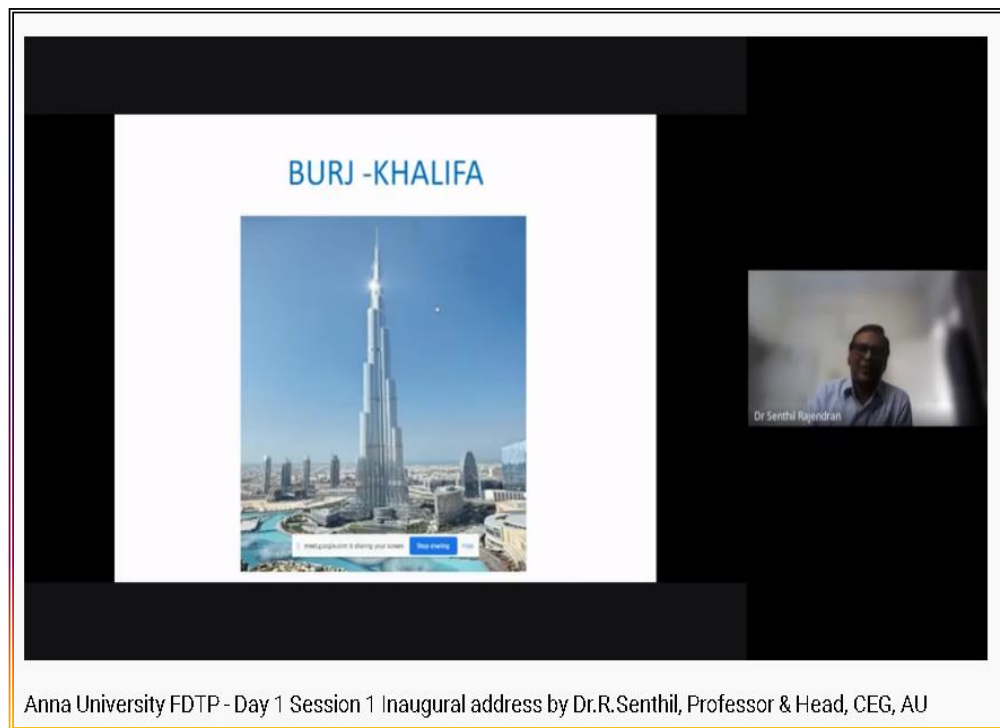
Dr. R. Senthil, Professor & Head, Department of Civil Engineering CEG Campus, Anna University inaugurated the training program with a lecture on “Introduction to Structural Analysis” on 14.06.2021 at 9.30 a.m. through online mode.

## **SESSION DETAILS**

### **14.05.2021 - SESSION 1**

The FDTP program was inaugurated on 9.30 am on 14.06.2021 by Dr.R Senthil, Head of Department of Civil Engineering, Anna University, Chennai. Dr. R. Kumutha, coordinator welcomed the participants and the respected speaker. Dr.R.Sathia introduced the speaker to the participants. Dr.R.Senthil delivered the welcome address and highlighted the importance of the FDTP program and the subject Structural analysis. He briefed about the importance of Structural analysis and interesting facts correlation in the real-life problem. He highlighted the primary goal of structural analysis is the computation of deformations, internal forces, and stresses.

In practice, structural analysis reveals the structural performance of the engineering design and ensures the soundness of structural integrity in design without dependence on direct testing. He concluded with the warm note that this subject should be taught to the students with clarity and the importance of the subjected should be emphasized to the students. The speaker cleared all the doubts asked by the participants. Dr.R.Kumutha proposed the vote of thanks and concluded the session.



### **Snapshot during Session 1**

## 14.05.2021 :SESSION 2

**Time** : 10:45 am to 12:15 pm  
**Unit 1** : Strain Energy Method  
**Speaker** : Dr. K.S.Babu Narayan  
**Topic** : Determination of Static and Kinematic Indeterminacies

Anna University FDTP - Day 1 Session 2 - Strain Energy Method by Dr.K.S.Babu Narayan, NIT Surathkal

## Snapshot during Session 2

## 14.05.2021: SESSION 3

**Time** : 1.30 am to 03:00 pm  
**Unit** : Strain Energy Method  
**Speaker** : Dr. K.S.Babu Narayan  
**Topic** : Analysis of continuous beams, plane frames and Trusses

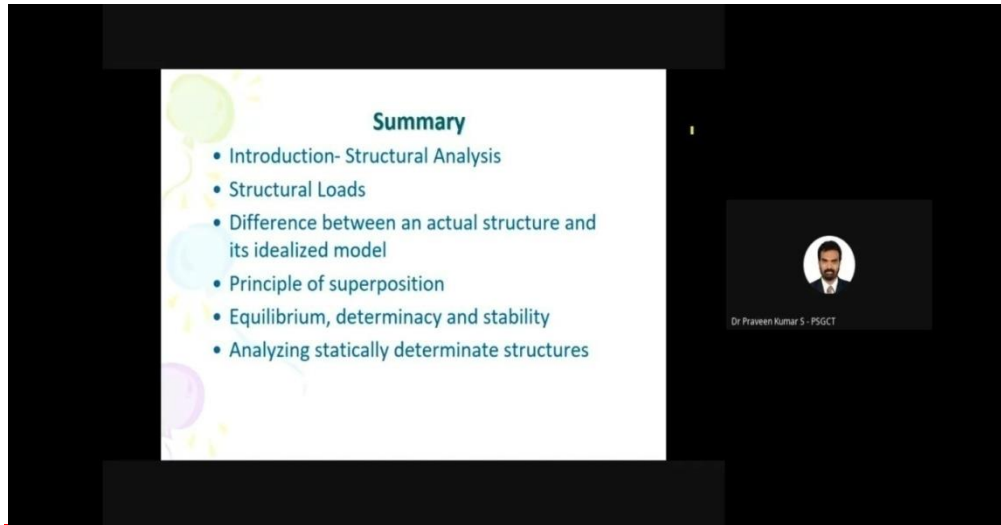
Anna University FDTP - Day 1 Session 3 - Strain Energy Method by Dr.K.S.Babu Narayan, NIT Surathkal

## Snapshot during Session 3



## 14.05.2021 :SESSION 4

**Time** : 3.15 pm to 4.45 pm  
**Unit** : Slope Deflection Method  
**Speaker** : Dr. Dr.S.Praveenkumar  
**Topic** : Slope deflection equations & Equilibrium conditions



**Summary**

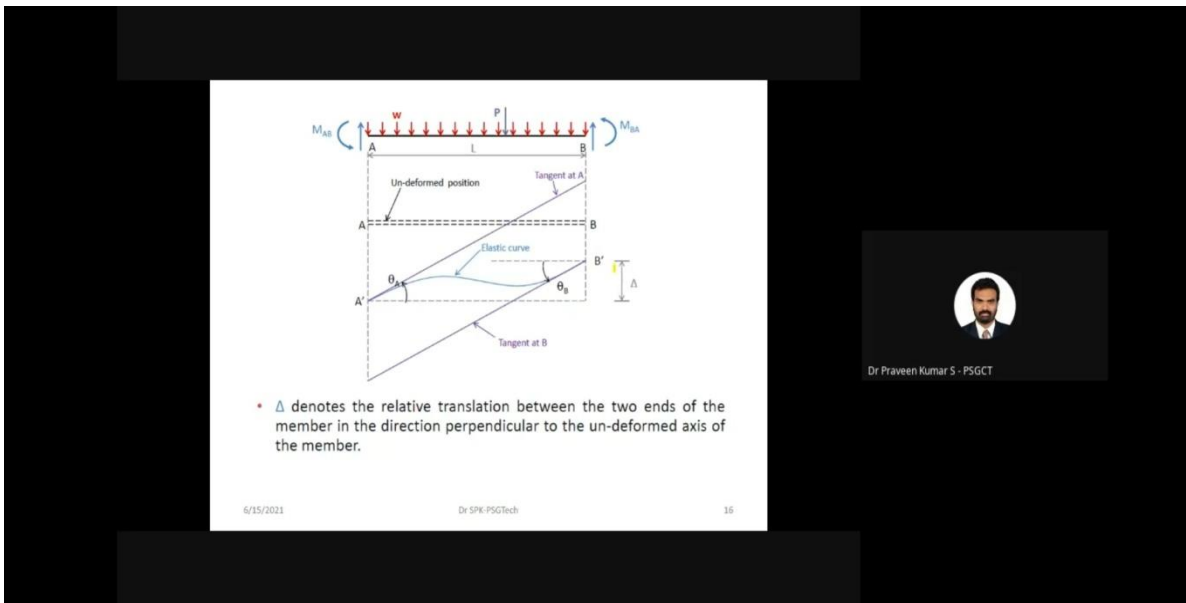
- Introduction- Structural Analysis
- Structural Loads
- Difference between an actual structure and its idealized model
- Principle of superposition
- Equilibrium, determinacy and stability
- Analyzing statically determinate structures

Dr Praveen Kumar S - PSGCT

## Snapshot during Session 4

## 15.05.2021 :SESSION 1

**Time** : 9.30 to 10.30 am  
**Unit** : Slope Deflection Method  
**Speaker** : Dr. Dr.S.Praveenkumar  
**Topic**: Analysis of continuous beams and rigid frames, Analysis of rigid frames with inclined members



$M_{AB}$   $M_{BA}$

Un-deformed position

Elastic curve

Tangent at A

Tangent at B

$\Delta$

•  $\Delta$  denotes the relative translation between the two ends of the member in the direction perpendicular to the un-deformed axis of the member.

6/15/2021 Dr SPE-PSGTech 16

Dr Praveen Kumar S - PSGCT

## Snapshot during Session 1

## 15.05.2021 :SESSION 2

**Time** : 10:45 am to 12:15 pm  
**Unit** : Slope Deflection Method  
**Speaker** : Dr. Dr.S.Praveenkumar  
**Topic** : Support settlements, Symmetric frames with symmetric and skew symmetric loadings.

**Analysis of Frames with sway**

- When the portal frame is likely to sway, i.e it will displace the vertical members in the horizontal direction, it cannot be neglected.
- In such a case, it is to be included for column members in slope deflection equations much in the same way as support settlements are considered for beam elements.
- The plane frames sway in the following situations :

6/15/2021 Dr SPK PSGTech 16

Dr Praveen Kumar S - PSGCT

## Snapshot during Session 2

## 15.05.2021 :SESSION 3

**Time** : 1.30pm to 3:15 pm  
**Unit** : Slope Deflection Method  
**Speaker** : Dr. Dr.S.Praveenkumar  
**Topic** : Symmetric frames with skewsymmetric loadings/ Tutorial

15th June 2021-Session 3- AU Sponsored FDTP-CE8502- Structural...

**Slope Deflection Equations**

Figure 1.23(b) shows deflected frame. Let  $B$  move to  $B'$  and  $BB'$  be equal to  $\Delta$ . Since, axial deformations are neglected,  $CC' = \Delta$ . However, final position of  $C$  cannot be  $C'$  because as per the assumption in slope deflection method, member  $DC$  cannot have axial deformation.  $CD$  can have movement only normal to itself.  $CC''$  is the line normal to  $CD$ . As  $BC$  can have only normal movement and no axial deformation  $C'C''$  is taken at normal to  $CC'$  at  $C'$ . Now  $\Delta CC'C''$  represent end settlements of members. Since,  $CC''$  is normal to horizontal and  $CC''$  normal to  $DC$ ,  $\angle CC''C' = \theta = 45^\circ$ .

**Figure 1.23(b):** Deflected share of frame.

Now,  
 $\Delta_{BA} = \Delta$   
 $\therefore \Delta_{BC} = \Delta$   
and  
 $\Delta_{DC} = CC'' = \frac{\Delta}{\cos \theta} = \sqrt{2} \Delta$

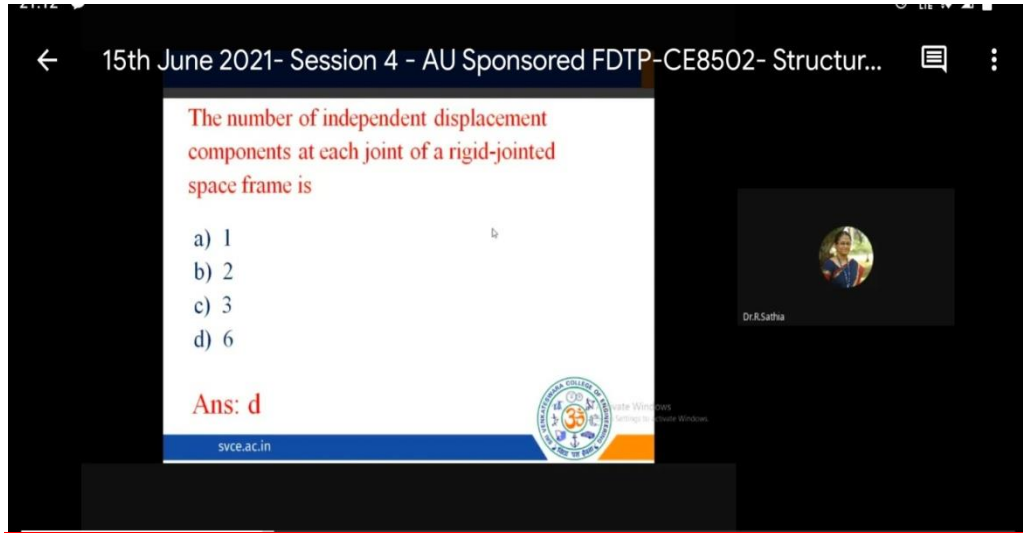
6/15/2021 Dr SPK PSGTech 41

Dr Praveen Kumar S - PSGCT

## Snapshot during Session 3

**15.05.2021 :SESSION 4**

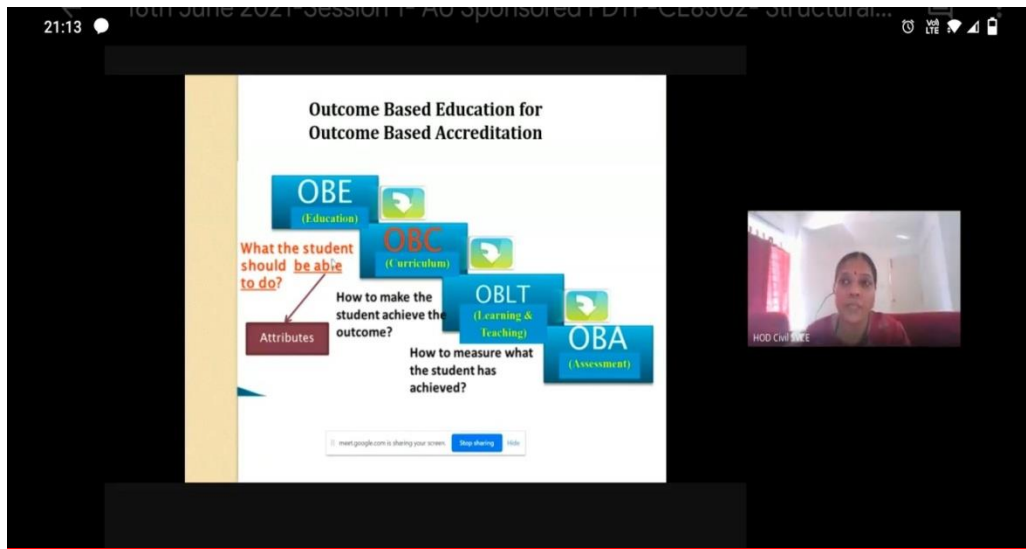
**Time** : 3.15 pm to 04.45 pm  
**Speaker** : Dr.R.Sathia  
**Topic** : Quiz



**Snapshot during Session 4**

**16.05.2021 :SESSION 1**

**Time** : 9.30 am to 10.45 pm  
**Speaker** : Dr. R.Kumutha  
**Topic** : Introduction to Outcome Based Education (OBE)



**Snapshot during Session 1**

**16.05.2021 :SESSION 2**

**Time** : 10:45 am to 12:15 pm  
**Unit** : Strain Energy Method  
**Speaker** :Dr. G.Tamizharasi  
**Topic** :Stiffness and carry over factors – Distribution and carryover of moments

**Structural Analysis**

- Three key steps
  - Modelling
  - Loading
  - Response

Using Principles of Structural Mechanics

Displacement and Force Quantities

T  
Tamizharasi Gandhi

Anna University FDTP - Day 3 Session 2 - Moment Distribution Method by Dr.G.Tamizharasi, SVNIT Surat

**Snapshot during Session 2**

**16.05.2021 :SESSION 3**

**Time** : 1.30 pm to 3.00 pm  
**Unit** : Strain Energy Method  
**Speaker** : Dr. G.Tamizharasi  
**Topic** : Analysis of continuous Beams (with and without settlement of supports)

Step by step procedure

1. Initial moments: 6.25, -6.25, 7.2, -4.8

2. Distribution factor at B: 0.95

3. Fixed end moments: -0.475, -0.475

4. Distribution factor at B: 0.5

5. Final moments: 6.0125, -6.725, 6.725, -5.0375

Total = 1 + 4 + 5

$K = \frac{4EI}{L}$

If far end is fixed  
 $DF = \frac{K}{\sum K} = 0.5$

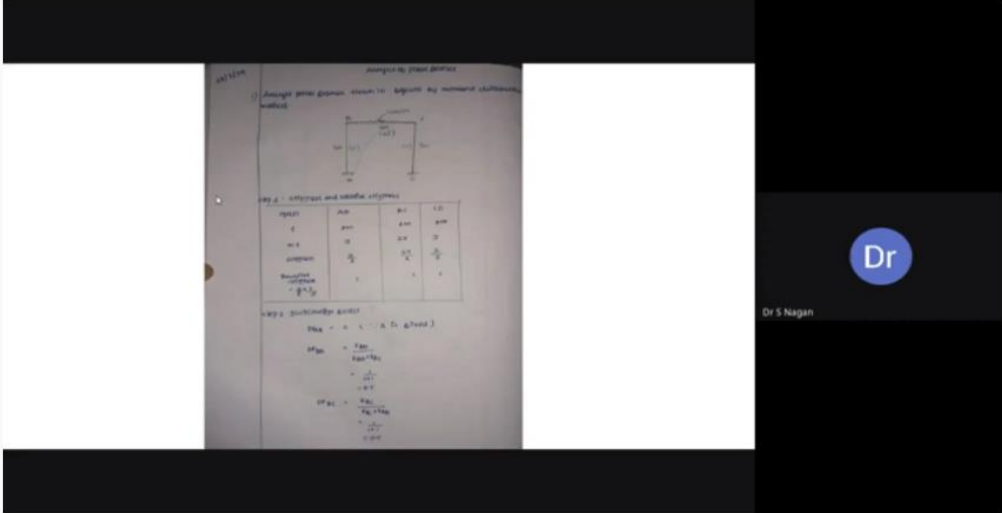
T  
Tamizharasi Gandhi

Anna University FDTP - Day 3 Session 3 - Moment Distribution Method by Dr.G.Tamizharasi, SVNIT Surat

**Snapshot during Session 3**

## 17.05.2021 :SESSION 1

**Time** : 9.00 am to 10.30 am  
**Unit** : Moment distribution method  
**Speaker** : Dr. S.Nagan  
**Topic** : Analysis of Frames without sway



The screenshot shows a presentation slide with a diagram of a frame structure and a table of stiffness values. The diagram is a portal frame with two columns and one beam. The table lists stiffness values for different members and joints. The text on the slide includes "Average given problem, solve it by moment distribution method", "Step 1 - identify and write stiffness", and "Step 2 - distribute moment".

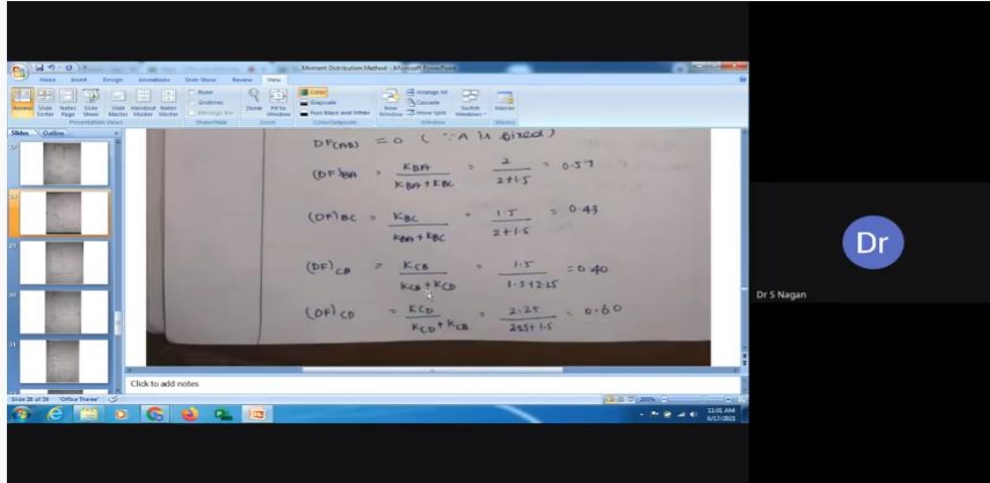
Member	Stiffness	Joint	Stiffness
AB	$\frac{4EI}{L}$	A	$\frac{4EI}{L}$
BC	$\frac{3EI}{L}$	B	$\frac{3EI}{L}$
CD	$\frac{4EI}{L}$	C	$\frac{4EI}{L}$

Anna University FDTP - Day 4 Session 1 - Moment Distribution Method by Dr.S.Nagan, TCE , Madurai

## Snapshot during Session 1

## 17.05.2021 :SESSION 2

**Time** : 10:45 am to 12:15 pm  
**Unit** : Moment distribution method  
**Speaker** : Dr. S.Nagan  
**Topic** : Analysis of Frames with sway



The screenshot shows a presentation slide with the calculation of distribution factors for a frame with sway. The calculations are as follows:

$$D^F_{AB} = \frac{K_{BA}}{K_{BA} + K_{BC}} = \frac{2}{2+1.5} = 0.57$$
$$D^F_{BC} = \frac{K_{CB}}{K_{CB} + K_{BC}} = \frac{1.5}{1.5+1.5} = 0.5$$
$$D^F_{CB} = \frac{K_{BC}}{K_{BC} + K_{CD}} = \frac{1.5}{1.5+1.5} = 0.5$$
$$D^F_{CD} = \frac{K_{DC}}{K_{DC} + K_{CB}} = \frac{2.25}{2.25+1.5} = 0.6$$

Anna University FDTP - Day 4 Session 2 - Moment Distribution Method by Dr.S.Nagan, TCE , Madurai

## Snapshot during Session 2

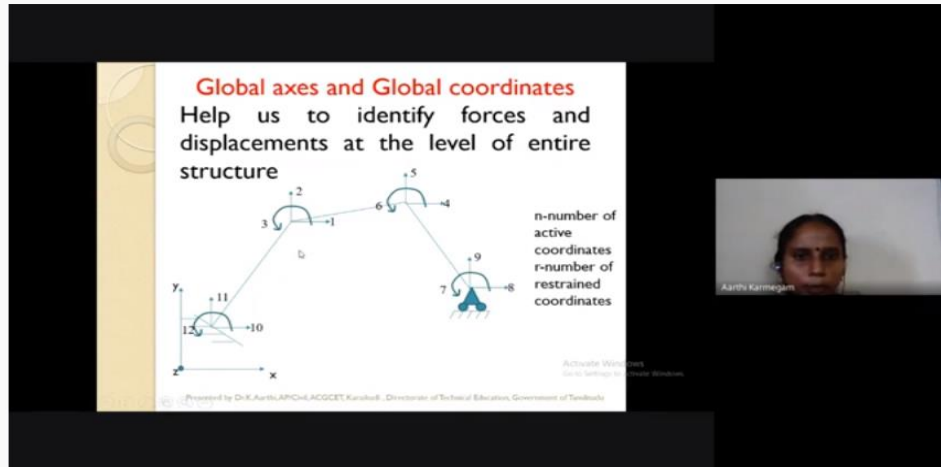
**17.05.2021 :SESSION 3**

**Time** : 1.30 pm to 3.00 pm

**Unit** :Flexibility Method

**Speaker** :Dr.K.Aarthi

**Topic** :Primary structures - Compatibility conditions - Formation of flexibility matrices



Anna University FDTP - Day 4 Session 3 - Flexibility Method by Dr.K.Aarthi, ACGCET, Karaikudi

**Snapshot during Session 3**

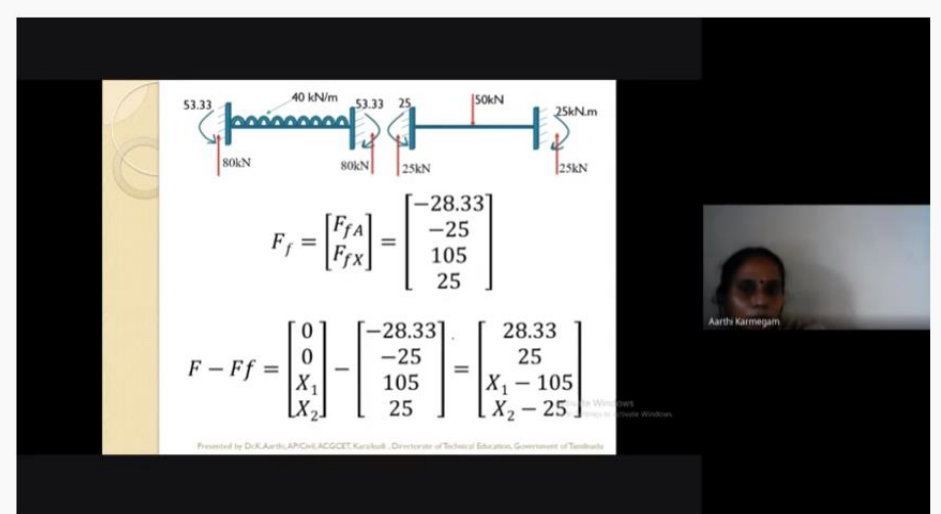
**17.05.2021 :SESSION 4**

**Time** : 3.15 pm to 3.45 pm

**Unit** :Flexibility Method

**Speaker** :Dr.K.Aarthi

**Topic** :Analysis of continuous beams and rigid jointed plane frames by direct flexibility approach



Anna University FDTP - Day 4 Session 4 - Flexibility Method by Dr.K.Aarthi, ACGCET, Karaikudi

**Snapshot during Session 4**

**18.05.2021 :SESSION 1**

**Time** : 9.30 am to 10.30 am  
**Unit** : Flexibility Method  
**Speaker** : Dr.K.Aarthi  
**Topic** : Analysis of indeterminate pinjointed plane frames by direct flexibility approach

$N_1 = +0.51764$   
 $N_2 = 0$   
 $N_3 = 0$   
 $N_4 = -0.73205$

Anna University FDTP - Day 5 Session 1 - Flexibility Method by Dr.K.Aarthi, ACGCET, Karaikudi.

**Snapshot during Session 1**

**18.05.2021 :SESSION 2**

**Time** : 10:45 am to 12:15 pm  
**Unit** : Stiffness method  
**Speaker** : Dr. S.Nagan  
**Topic** : Restrained structure –Formation of stiffness matrices - equilibrium condition

**Step 1 : To form the static matrix[A]**

c) To form the static matrix by considering static equilibrium of joints  
At any joint other than fixed support, sum of external joint moment should be equal to sum of internal joint moment for static equilibrium

At B,  $P_1 = F_2 + F_3$       At C,  $P_2 = F_4$

It can be written as  
 $P_1 = (F_1 \cdot 0) + (F_2 \cdot 1) + (F_3 \cdot 1) + (F_4 \cdot 0)$   
 $P_2 = (F_1 \cdot 0) + (F_2 \cdot 0) + (F_3 \cdot 0) + (F_4 \cdot 1)$

In matrix form,  
$$\begin{bmatrix} P_1 \\ P_2 \end{bmatrix} = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} F_1 \\ F_2 \\ F_3 \\ F_4 \end{bmatrix}$$
  
$$[P] = [A][F]$$
  
$$[A] = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

P-x Diagram  
F-e Diagram

Anna University FDTP - Day 5 Session 2 - Stiffness Matrix Method by Dr.S.Nagan, TCE, Madurai

**Snapshot during Session 2**

### 18.05.2021 :SESSION 3

**Time** : 1.30 pm to 3.00 pm  
**Unit** : Stiffness method  
**Speaker** : Dr. S.Nagan  
**Topic** : Analysis of Continuous Beams and rigid frames by direct stiffness method

Step 2 : To form  $[A]^T$

$$A^T = \begin{bmatrix} 0 & 0 \\ 1 & 0 \\ 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Step 3 : To form the element stiffness matrix  $[k]$

$$[k] = \begin{bmatrix} 4EI_1/l_1 & 2EI_1/l_1 & 0 & 0 \\ 2EI_1/l_1 & 4EI_1/l_1 & 0 & 0 \\ 0 & 0 & 4EI_2/l_2 & 2EI_2/l_2 \\ 0 & 0 & 2EI_2/l_2 & 4EI_2/l_2 \end{bmatrix}$$

Anna University FDTP - Day 5 Session 3 - Stiffness Matrix Method by Dr.S.Nagan, TCE, Madurai

### Snapshot during Session 3

### 18.05.2021 :SESSION 4

**Time** : 3.15 am to 4.45 pm  
**Unit** : Stiffness method  
**Speaker** : Dr. S.Nagan  
**Topic** : Analysis of Pin-jointed plane frames by direct stiffness method

Analysis of Pin-jointed frames

Matrix Displacement Method

Steps: To form the Stiffness Matrix: (A) To draw the P-x diagram!

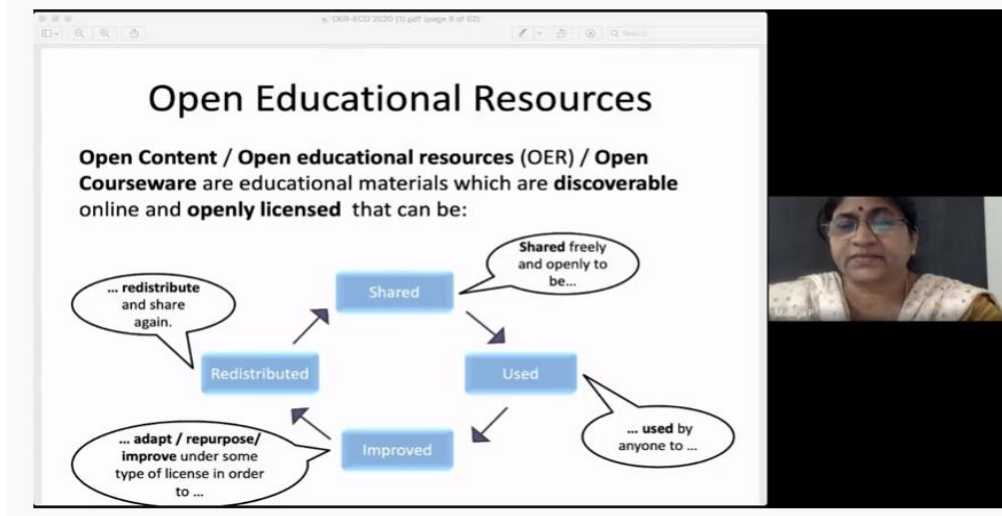
Anna University FDTP - Day 5 Session 4 - Stiffness Matrix Method by Dr.S.Nagan, TCE, Madurai

### Snapshot during Session 4



**19.05.2021 :SESSION 1**

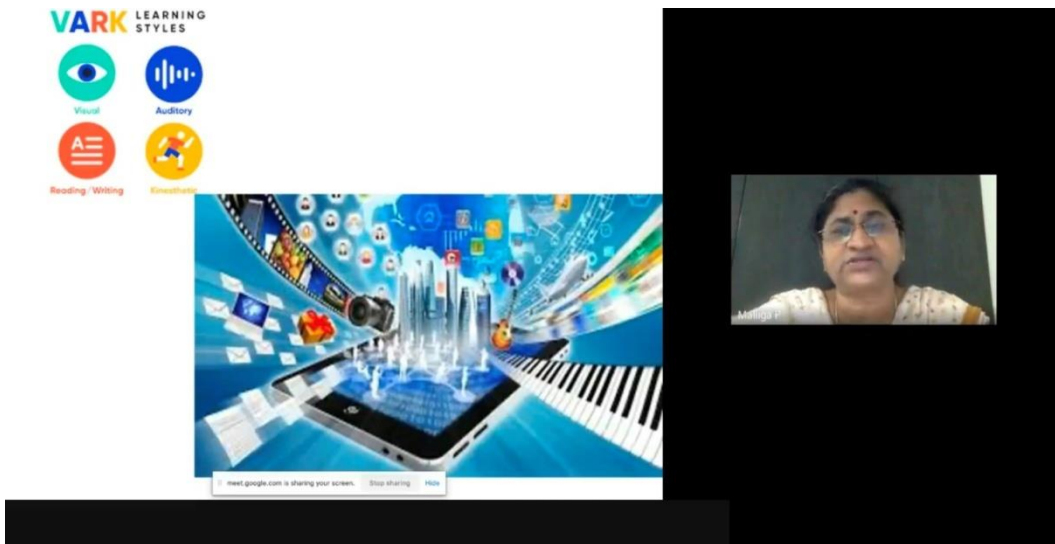
***Time*** : 9.00 am to 10.30 am  
***Speaker*** :Dr.P.Malliga  
***Topic*** :E-Content Development in Higher Education



**Snapshot during Session 1**

**19.05.2021: SESSION 2**

***Time*** : 10.45 am to 12.15 pm  
***Speaker*** :Dr.P.Malliga  
***Topic*** : Open Educational Resources



**Snapshot during Session 2**

# GROUP PHOTO

This screenshot shows a Google Meet session titled "15th June 2021- Sessi...". The interface includes a "REC" button in the top left, a grid of 36 participant tiles, and a control bar at the bottom. The participants are arranged in a 4x9 grid. The names of the participants are: HOD Civil SVCE, Deepak Mohan, Karthick R, Southamirajan S, Ms.R.Pamila, Karthik Sana, Raja M A, Premkumar S, RAJIV GANDHI..., M MUTHURAJA, Riyas PR, T.SWEDHA, Ranjitha K, Ramesh S, Dr.K. Vijai, Dennis Flora, Maria Monisha L, KANNADASAN B, UMA MAGUES..., P Prabhu, V.J. Vedhanaya..., Sujaatha A, S.KANIMOZHI, SANTHOSH KU..., vinodh kumar, Padmarani Ra..., Arunraj Christa..., Anbarasan S, KANNADASAN B, DHARANI D CIVIL, SAMEEM SUHA..., VIJAY VIGNES..., R.M. KARTHIKE..., R.PARTHASAR..., 8 others, and You. The bottom of the screen shows a Windows taskbar with the search bar and various application icons. The time is 4:30 PM on 15th June 2021.

This screenshot shows a Google Meet session titled "18th June...". The interface includes a "REC" button in the top left, a grid of 36 participant tiles, and a control bar at the bottom. The participants are arranged in a 4x9 grid. The names of the participants are: Anbarasan S, Ranjitha K, Dr.P.Muthupriy..., NANDA KUMAR, Ramesh S, P Prabhu, Southamirajan S, Karthick R, Karthick R, R.M.KARTHIKEY..., SANTHOSH KU..., sharmila sankar, SAMEEM SUHA M, Suriya Anusuya, Maria Monisha L, Arunraj Christa..., T.SWEDHA, Parthiban A, R.PARTHASARA..., M MUTHURAJA, Raja M A, KANNADASAN B, Dennis Flora, Karthik Sana, Nawina Subram..., Sujaatha A, V.J. Vedhanaya..., Ms.R Pamila, VINODHKUMA..., UMA MAGUESV..., GOKULNATH S..., Padmarani Ram..., RAJIV GANDHI N, Riyas PR, and You. The bottom of the screen shows a Windows taskbar with the search bar and various application icons. The time is 2:49 PM on 18th June 2021.

## **VALEDICTORY SESSION**

Dr.R.Kumutha, Professor and Head, Department of Civil Engineering, Sri Venkateswara College of Engineering and also the coordinator of the program welcomed the participants. She started with the note of thanks to the principal for permitting her to apply and ANNA University to approve the same with grant.

She thanked all the participants for being active. She thanked all the speakers who had given acceptance for the program and supported throughout. She thanked Ms. Ruby Freya, Assistant Professor, for supporting in conducting the program. She gave a summarized report about the 6-day program and highlighted the key point of each lecture. She requested participants to give their feedback. Many participants shared their feedback orally through chat during the session.

The participants appreciated that the coordinators organizing the program well and thanked the ANNA University for giving us the opportunity to organize the programme. Few participants also appreciated for the eminent speakers arranged for the program and the dissemination of learning materials through mail.

Dr.R.Sathia shared her experience in organizing this event along with the coordinator and also thanked the participants for being patient and cooperative throughout. The coordinator was overwhelmed with the positive comments and thanked God Almighty for the success and concluded the session.

## **PARTICIPANTS' FEEDBACK**

**Ranjitha K:** Completed mam. Thank you for organizing very useful FDP..

**GOKULNATH SRIET:** I got more information in this FDTP. Thank you so much mam...

**Riyas PR:** It was really a knowledge boosting session.

Apart from the Technical session, we gain ideas related to OBE.

**Dennis Flora:** U all r put much effort for this Fdtp... Thank you so much for that mam..

**S.KANIMOZHI:** Mam, Thanks a lot for your great effort for conducting FDTP...It is really very much informative...Dr.Sathia mam was very kind for all question we asked..Thank you mam

**SAMEEM SUHA M:** All the sessions are very informative and wonderful.

Thank you for all the effects mam ( Dr.Kumutha mam & Dr. Sathia mam)

**Vijay Vignesh CVE:** Thank you so much ma'am for conducting this FDTP. All the sessions are very informative.

**Padmarani Ramesh:** Thank you so much for conducting this fdp mam. Its was totally very effective and informative mam.

**P Prabhu:** first congragulations to both of you madam.For arranging this fdp

**Dr.P.Muthupriya Professor & Head:** Thank you for the opportunity and thank you for arrangements

Sujaatha A: Thank You very much mam. Very useful and Informative session

## **YOUTUBE LINKS OF RECORDED LECTURES**

1. 14.06.2021, session :1, Topic-Introduction to FDP and Instructions to Participants (9.00 to 9.30 am) 9.30 to 10.30 am : Keynote Lecture Dr.R.Senthil Head, Structural Engineering, College of Engineering Guindy, Anna University. <https://youtu.be/C79iJ71733A>
2. 14.06.2021, session :2,Unit 1 : Strain Energy method : Determination of static and Kinematic IndeterminaciesDr.K.Babunarayan, Professor, Department of Civil Engineering NITK SurathkalMangalore <https://youtu.be/D8DB7zaldKM>
3. 14.06.2021, session :3,Unit 1 : Strain Energy method : Determination of static and Kinematic Indeterminacies Dr.K.Babunarayan, Professor, Department of Civil Engineering NITK Surathkal,Mangalore <https://youtu.be/KIEKKM5dDzw>
4. 14.06.2021, session :4,Unit 2 : slope deflection method : Slope deflection equations and equilibrium conditionsDr.S.PraveenKumar, AssistantProfessor, Department of Civil Engineering, PSG college of Technology, Coimbatore.<https://youtu.be/dzaVMJfyG-U>
5. 15.06.2021, session :1,Unit 2 : Slope deflection method : Slope deflection equations and equilibrium conditions Dr.S.PraveenKumar, AssistantProfessor, Department of Civil Engineering, PSG college of Technology, Coimbatore.<https://youtu.be/bMYkKH15TBCU>
6. 15.06.2021, session :2,Unit 2 : slope deflection method : Slope deflection equations and equilibrium conditions Dr.S.PraveenKumar, AssistantProfessor, Department of Civil Engineering, PSG college of Technology, Coimbatore[https://youtu.be/B\\_EOuYk\\_i2g](https://youtu.be/B_EOuYk_i2g)
7. 15.06.2021, session :3, Unit 2 : slope deflection method : Slope deflection equations and equilibrium conditions Dr.S.PraveenKumar, Assistant Professor, Department of Civil Engineering, PSG college of Technology, Coimbatore.<https://youtu.be/qhibLOr13js>
8. 15.06.2021, session : 4 , QuizDr.R.Sathia, Associate Professor, Department of Civil Engineering SVCE, Sriperumbudur[https://youtu.be/B\\_E0uYk\\_i2g](https://youtu.be/B_E0uYk_i2g)
9. 16.06.2021, session :1 Introduction to Outcome Based Education (OBE) Dr.R.Kumutha Professor & Head Department of Civil Engineering SVCE, Sriperumbudur<https://youtu.be/PjiQ9WV80nA>
10. 16.06.2021, session :2, Unit 3 :Moment distribution method : Dr.G.Tamizharasi, , AssistantProfessor, Department of Civil Engineering, SVNIT Surat,


<https://youtu.be/RrWH7Mwa4Ys>

11. 16.06.2021, session :3 Unit 3 :Moment distribution method : Dr.G.Tamizharasi, , Assistant Professor, Department of Civil Engineering, SVNIT Surat,[https://youtu.be/\\_JGtLSJvA6Q](https://youtu.be/_JGtLSJvA6Q)
12. 16.06.2021, session :4 ,Quiz
13. 17.06.2021, session :1, Unit 3 – Moment distribution method, Dr. S. Nagan Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai. <https://youtu.be/WkKHLHAaNIA>
14. 17.06.2021, session :2, Unit 3 – Moment distribution method by Dr. S. Nagan Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai. <https://youtu.be/I4sl9jyHIWc>
15. 17.06.2021, session : 3,Unit 4 -Flexibility Method Analysis of indeterminate pinjointed plane frames by direct flexibility approach byDr.K.Aarthi Assistant Professor Department of Civil Engineering AlagappaChettiar College of Engineering and Technology Karaikudi<https://youtu.be/42VDBfQrtgd>
16. 17.06.2021, session : 4,Unit 4 -Flexibility Method Analysis of indeterminate pinjointed plane frames by direct flexibility approach byDr.K.Aarthi Assistant Professor Department of Civil Engineering AlagappaChettiar College of Engineering and Technology Karaikudi<https://youtu.be/42VDBfQrtgd>
17. 18.06.2021, session :1, Unit 4 -Flexibility Method Analysis of indeterminate pinjointed plane frames by direct flexibility approach byDr.K.Aarthi Assistant Professor Department of Civil Engineering AlagappaChettiar College of Engineering and Technology Karaikudi<https://youtu.be/eLd36PD-27o>
18. 18.06.2021, Session :2, Unit 5 – Stiffness method Restrained structure –Formation of stiffness matrices - equilibrium condition by Dr. S. Nagan Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai. <https://youtu.be/CtvWLGGrkHTw>
19. 18.06.2021, Session :3,Unit 5 – Stiffness method Restrained structure –Formation of stiffness matrices - equilibrium condition by Dr. S. Nagan Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai. [https://youtu.be/\\_git0h2QWdo](https://youtu.be/_git0h2QWdo)
20. 18.06.2021, Session :4, Unit 5 – Stiffness method Analysis of Pin-jointed plane frames by direct

stiffness method by Dr. S. Nagan Professor Department of Civil Engineering Thiagarajar College of Engineering, Madurai.<https://youtu.be/fhmdT1N1q5Y>

21. 19.06.2021, session :1, Topic: E-Content Development in Higher Education by Dr.P.Malliga Associate Professor, Department of Computer Science & Engineering, NITTTR, Chennai.<https://youtu.be/CN44Y1w6bNU>
22. 19.06.2021, Session 2, Topic: Open Educational Resources by Dr.P.Malliga, Associate Professor, Department of Computer Science & Engineering, NITTTR, Chennai.<https://youtu.be/onLu9AJquvI>.
23. 19.06.2021, session :3, Test
24. 19.06.2021, session :4, Feedback and Valedictory

**Coordinator**



**Dr.R.Kumutha**

Professor and Head

Dept. of Civil Engineering

Sri Venkateswara College of Engineering

**Coordinator**



**Dr.R.Sathia**

Associate Professor

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