

# EDIFICE

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**NEWSLETTER OF THE DEPARTMENT OF CIVIL ENGINEERING**

**SSN COLLEGE OF ENGINEERING**

# EDITORIAL

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## FROM THE HOD'S DESK

Warm Greetings and Hearty New Year Wishes to all.

The year 2016 saw the second graduating class of civil engineers from our institute and I am extremely pleased that over 30 students have been placed and nearly 16 students have secured admission to pursue higher studies both in India and abroad. Through the continued efforts of our students, faculty and staff, we have successfully conducted the second National Conference on Advances in Civil Engineering (ACE-2k16) on September 2016. Our faculty members have published 15 papers in reputed journals and conference proceedings during the year 2016. I wish to congratulate all the faculty members for their continued research efforts and dedication to bring laurels to the department. Our department has received 12 student projects and 2 faculty projects funded by the management for the current academic year and I congratulate all of them for successful completion of the projects.

Twenty of our final year students have attended inplant training/internship in major companies like CMRL, CPCL, L&T, and Simplex during their summer vacation. I congratulate Ms. Ramya Sajeewan, final year student for completing 2 months internship at Dow Chemical International Pvt. Ltd., Chennai. The final year student of our department Ms. B.V. Ramya Tulasi had brought laurels to our institutions through her selection in the Chennai Smashers team for the Premier Badminton league. It is my pleasure to mention that, Dr. S. Muthulingam, Associate Professor has completed 6 months Endeavour Research Fellowship for Post Doctoral study at University of Newcastle, Australia. My compliments to the office bearers of the Association of Civil Engineers for conducting number of events successfully during the symposium INVENTE 2016.

I appreciate and thank the editorial team for their sincere effort in bringing the second edition of our news letter. I wish all our students to attain great success in their future endeavours.

Dr. S. Ramana Gopal

## RESEARCH PUBLICATIONS

[Dr. S. Ramana Gopal](#), “An Experimental Study on FRC Infilled Steel Tubular Columns under Eccentric Loading”, KSCE Journal of Civil Engineering, Jun 2016.

[Dr. Y. K. Sabapathy](#), along with 2011-15 batch students Yeshwant Kumar Anandan, Prathulya Vaidyanath and Prashaanth Baskar, “Strength Properties of Coated E-Glass Fibres in Concrete”, Gradevinar, Vol. 68, Issue 09, pp. 697-703, 2016.

[Dr. Srinath Rajagopalan](#), et al, “Global Patterns and Environmental Controls of Perchlorate and Nitrate Co-Occurrence in Arid and Semi-Arid Environments”, Geochimica et Cosmochimica Acta, Vol. 164, pp. 502-522, 2015.

[Dr. B. Mahalingam](#), [Dr. Mohammed K. Haneefa](#), et al, “Assessment of Hardened Characteristics of Raw Fly Ash Blended Self-Compacting Concrete”, Perspectives in Science – Recent Trends in Engineering and Material Sciences, Vol. 8, pp. 709-711, 2016.

[Dr. Mohammed K. Haneefa](#), [Dr. B. Mahalingam](#), et al, “Advanced Machines and Automation Techniques in Modern Construction Practice and their Possible Use in India”, Applied Mechanics and Materials, Vol. 852, pp. 839-845, 2016.



**Dr. Mohammed K. Haneefa**, et al, “A Structural Dynamic Approach to Evaluate Modulus of Elasticity of Cantilever Beam”, Applied Mechanics and Materials, Vol. 852, pp. 483-488, 2016.

**Dr. Sivapriya S.V.**, along with final year students Pavithra P.K., Sowmiya P. and Uma Devi S., “Effective Reusage Method of Waste Material – Disposed Plastics”, International Research Journal of Engineering and Technology, Vol. 3, Issue 7, Jul 2016.

**Dr. S. Muthulingam and Dr. B.N. Rao**, “Effects of Rebar on Chloride Ingress in Steel Reinforced Concrete Components”, Journal of Structural Engineering, Vol. 43, No. 2, pp. 135-149, 2016.

**Dr. S. Muthulingam**, “Gaussian Descriptions of Corrosion Initiation in Steel Bars of Fly Ash Concrete Elements”, Structure and Infrastructure Engineering – Maintenance, Management, Life-Cycle Design and Performance, Dec 2016.

**Ms. P. Sangeetha and Dr. R. Senthil**, “A Study on Ultimate Behaviour of Composite Space Truss”, KSCE Journal of Civil Engineering, Jul 2016.

**Ms. P. Sangeetha and Dr. R. Senthil**, “Analytical Study on Influence of Concrete Parameters on Composite Space Truss”, International Journal of Advanced Engineering Technology, Vol. 7, Issue 2, pp. 184-188, 2016, 2016.

## CONFERENCE PROCEEDINGS

**Dr. Sivapriya S.V.** presented a paper titled "Influence of Industrial Effluents on Soil" in the Indian Geotechnical Society's annual conference IGC 2016 at IIT Madras conducted on 15th-17th December 2016 (authored with Dr. Nagarajan V. and 2012-16 batch students Nijandhan H., Elamathy M., Lavanya H. and Dilip Kumar R.).

**Ms. Sumetha R.** presented a paper titled "Analyzing the Demand for Public Transport through Behavioral Mode Choice Models for Work Trips in Tiruchirappalli City" in the International Conference on Transportation Planning and Implementation Methodologies for Developing Countries at IIT Bombay conducted on 19th-21st December 2016.

## WORKSHOP/FDTP

**Dr. Srinath R.** attended the faculty development training programme on "CE 6605 - Environmental Engineering II" organized by College of Engineering Guindy, Anna University conducted between 01st and 11th December 2016.

**Ms. Sumetha R.** attended the workshop on "Open Source Tools for Activity-Based Travel Behaviour Modeling" organized by Transportation Systems Engineering, Department of Civil Engineering, IIT Bombay conducted on 21st December 2016.



## FACULTY FUNDED PROJECTS

**Dr. R. Srinath And Dr. B. Mahalingam** - "In-situ remediation of hexavalent chromium in soil and aquifers"

**Dr. S. V. Siva Priya** - "Effect of eccentricity in latterly loaded pile group in a sloping ground"

## POST-DOCTORAL FELLOWSHIP

Dr. S. Muthulingam received an Endeavour Research Fellowship award, an Australian Government's competitive, merit-based fellowship for doing post-doctoral research.



During this research exposure (February 2016–August 2016) at The University of Newcastle he had the opportunity to associate and work with the supervision of Professor Mark G. Stewart, a pioneer in the area of climatic change and its effects on concrete deterioration.

He actively conducted research related to (1) risk and cost benefits analysis related to climatic change, (2) chloride-induced corrosion damage risks on built infrastructure deterioration, and (3) risk analysis during the events of terrorism. This visit made possible research articles, sharing of knowledge, and a creation of new knowledge pool including a collaborative research project that is in pipeline.



## STUDENT FUNDED PROJECTS

| S.NO | NAME OF THE STUDENTS<br>&YEAR                                                         | FACULTY IN CHARGE(S)                       | TITLE OF THE PROJECT                                                                                                      | DURATION  |
|------|---------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------|
| 1    | V. GOKUL<br>J. MOHAMED KAMAL<br>V. B. SHALINI<br>SANGEETHA MENON<br>(II-YEAR)         | DR. S. RAMANAGOPAL<br>DR. R. VIJAYALAKSHMI | COMPARATIVE STUDY ON THE<br>PERFORMANCE OF<br>SELF COMPACTING CONCRETE<br>REPLACED WITH<br>VARIOUS MINERAL ADMIXTURES     | 8 MONTHS  |
| 2    | C. ACASH<br>R. M. MANIMANICKAM<br>K. P. PRIYADHARSHINI<br>V. SRILEKHA<br>(II-YEAR)    | DR. Y. K. SABAPATHY                        | FLEXURAL STRENGTH OF<br>CONCRETE BEAMS<br>REINFORCED WITH SHORT RIGID<br>GLASS FIBRES                                     | 8 MONTHS  |
| 3    | V. JAWAHAR<br>N. RAGHAVI<br>K. VAISHNAVI<br>(II-YEAR)                                 | DR. Y. K. SABAPATHY                        | EXPERIMENTAL STUDY ON<br>STRENGTH PROPERTIES<br>OF CONCRETE REINFORCED WITH<br>SCRAP COPPER<br>FIBRES                     | 8 MONTHS  |
| 4    | R. BALAMURUKAN<br>A. JAI VIGNESHWAR<br>N. PRATHIBHA DEVI<br>A. SHRINIDHI<br>(II-YEAR) | DR. S. V. SIVAPRIYA                        | EFFECT OF ECCENTRICITY IN<br>LATERALLY LOADED<br>PILE KEPT IN THE SLOPE                                                   | 10 MONTHS |
| 5    | A. POONGUZHALI<br>P. RAVI KUMAR<br>S. SURYA PRAKASH<br>(II-YEAR)                      | DR. SRINATH RAJAGOPALAN                    | ASSESSMENT OF TOXICITY<br>FACTOR OF VARIOUS<br>INDUSTRIAL DOMESTIC WASTE<br>WATER EFFLUENTS<br>TO ZEBRAFISH (DANIO RERIO) | 6 MONTHS  |
| 6    | V. R. RAKESH RAJ<br>S. RAKESH<br>A. S. ANNAL<br>(II-YEAR)                             | DR. R. RAJKUMAR                            | EXPERIMENTAL STUDY ON THE<br>BEHAVIOUR OF<br>BEAM COLUMN JOINTS WITH<br>WELDED WIRE<br>MESH                               | 15 MONTHS |



| S.NO | NAME OF THE STUDENTS & YEAR                                                                         | FACULTY IN CHARGE(S) | TITLE OF THE PROJECT                                                                                          | DURATION  |
|------|-----------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| 7    | R. AMIRTHA<br>DHARSHANA RAJASEKAR<br>JEMSHIA S CANIS<br>B. S. VIGNESH<br>M. V. YOKESH<br>(III-YEAR) | DR. Y. K. SABAPATHY  | PARTIAL REPLACEMENT OF NATURAL AGGREGATE BY EOF STEEL SLAG IN MANUFACTURING OF STABILISED UNFIRED CLAY BRICKS | 8 MONTHS  |
| 8    | K. ABINAYA<br>D. DHARSHIKA<br>Y. HARIKA<br>D. MAHESH<br>B. POWN KRISHNAN<br>(III-YEAR)              | DR. Y. K. SABAPATHY  | PARTIAL REPLACEMENT OF NATURAL AGGREGATES BY EOF STEEL SLAG IN MANUFACTURING OF HOLLOW BLOCKS                 | 8 MONTHS  |
| 9    | J. GOKUL KRISHNA<br>S. M. RAMASAMY<br>D. SABARISH<br>C.N.A. NITISH<br>(I-YEAR)                      | DR. Y. K. SABAPATHY  | THE INFLUENCE OF BONE SHAPED ALUMINIUM FIBRES IN STRENGTH PROPERTIES OF CONCRETE                              | 8 MONTHS  |
| 10   | S. VISHNU VARDHAN<br>K. UDHAYA PRABHU<br>K. MUKESHWARAA<br>(I-YEAR)                                 | DR. Y. K. SABAPATHY  | SHEAR CAPACITY OF REINFORCED CONCRETE BEAMS WITH COATED E-GLASS FIBRES                                        | 8 MONTHS  |
| 11   | B. MUKUL ANAND<br>G. VISHNU ARAVIND<br>A. PRASANTH<br>K. YOGESH KUMAR<br>(II-YEAR)                  | DR. R. RAJKUMAR      | EXPERIMENTAL STUDY ON CONCRETE WITH M SAND AND FLY ASH SUBJECTED TO FATIGUE LOADING                           | 15 MONTHS |
| 12   | S. KIM NEPHEG<br>M. SAI PRADEEP<br>T. AJITH KUMAR<br>(III-YEAR)                                     | DR. B. MAHALINGAM    | LIGHT WEIGHT CONSTRUCTION MATERIALS USING EPS AND FLYASH                                                      | 10 MONTHS |

## CO-CURRICULAR ACTIVITIES

### INTERNSHIPS

1. **M. P. Adithyan, S. Ajay (III Year)**  
*Chennai Metro Rail Limited, Chennai*
2. **P. Bala Subramanian (III Year)**  
*Mars Geo Tech Lab, Chennai*
3. **Akkineni Surya Teja (IV Year)**  
*Sarathy Geotech and Engineering Services Private Limited, Bangalore*
4. **Deepak Kumar.D and Srivatsan.D (IV Year)**  
*70 hours Internship on Advanced Surveying and Structural Engineering, Concrete Technology and Earthquake Resistant Structure Design - Expertshub Industry Skill Development Centre, Chennai*
5. **Dinesh Dhamodaran (IV Year)**  
*Hallmark Infrastructure Pvt.Ltd, Chennai*
6. **Nithin Thomas John (IV Year)**  
*Chennai Metro Rail Limited, Chennai*
7. **Prashaanth.V and Sachin Nishil.R (IV Year)**  
*Larsen and Tpubro Construction, Chennai*
8. **Ramya Sajeevan (IV Year)**  
*Dow Chemicals International Pvt.Ltd, Chennai*
9. **Ramya Tulasi (IV Year)**  
*Summer Internship at IIT Madras - Geotechnical Department, Chennai*
10. **M.V.Swarnalakshmi (IV Year)**  
*Petrofac Engineering Services India Pvt. Ltd, Chennai*
11. **S.Uma Devi (IV Year)**  
*Technip India Limited- Civil & Structural Design Department, Chennai*



## WORKSHOPS

- 1. Arjun.S.A., G.Dachina, Dhivya, Gowtham, S.Janani, Rekha.J, Ramya Sajeevan, (IV Year)**  
*Entrepreneurship Awareness Camp organised by SSN Incubation Centre, SSN College of Engineering, Chennai.*
- 2. Deepak Kumar.D and Srivatsan.D (IV Year)**  
*Two day Internship Training on how to use Advanced Instruments (Total Station) - Lawrence & Mayo Ltd, Chennai.*
- 3. Deepak Kumar.D (IV Year)**  
*Construction, Real Estate, Infrastructure and Project (CRIP) Management conducted by NICMAR, Pune.*
- 4. S. Venkatesh (IV Year)**  
*Entrepreneurship and Management Skill Workshop - Artifex '16 - National Level Technical Symposium of Sri Venkateswara College of Engineering, Chennai.*

## IN-PLANT TRAINING

- 1. Vignesh Kumar Shivashankar (III Year)**  
*Leo Ventures, Chennai*
- 2. Rahul Raj Ravi, Akshay Desai (III Year)**  
*AMACE Projects Pvt. Ltd., Chennai*
- 3. Saravana Kumar (III Year)**  
*Dina Planner and Builder, Karaikal*
- 4. C. Sudarshanan (III Year)**  
*A.S Builders, Salem*
- 5. N. U. Nikhileesh (III Year)**  
*Simplex Infrastructures Ltd., Chennai*
- 6. Aadhitya.S.R, S.Monika, P.Priyamvadha, Priyanka.C, Rashmi Nagendran, Roshni.A, G. Sai Pradeep, Venkatesh.S. (IV Year)**  
*Public Works Department, Hydraulics Division, Tiruvallur.*
- 7. S.Monika, Rashmi Nagendran and Roshni.A. (IV Year)**  
*Chennai Petroleum Corporation Limited (CPCL), Manali*

## COURSES

### 1. Deepak Kumar.D (IV Year)

*Successfully completed NPTEL Online Course on "Project Planning and Control" with an overall score of 88%.*

## PAPER PUBLICATIONS

### 1. Akkineni Surya Teja (IV Year)

*"Experimental and Theoretical Studies on Un-plasticized Poly Vinyl Chloride (UPVC) pipe buried in cohesionless backfill"*

*International Journal of Advanced Engineering Technology  
E-ISSN 0976 - 3945, Volume VII, Issue III*

*"Retrofitting of Concrete Circular Columns using CFRP"*

*International Journal of Engineering Sciences and Research Technology  
ISSN: 2277-9655, June 2016*

*"Study on Compressive Strength Characteristics of Spherical Hollow Core Cement Concrete Blocks using Ferro Sand (Copper Slag)"*

*Ahead - International Journal of Recent Research Review  
ISSN : 2456-205X, Volume 1, Issue - 3*

## COMPETITIONS

### 1. Pown Krishnan,Vignesh B.S (III Year)

*Won First place in TECHNICAL QUIZ event during Reconin '16 - National Level Technical Symposium of St.Joseph's College of Engineering.*

### 2. Sharon Victor , Hareesh (III Year)

*Won First Place in POSTER PRESENTATION event during Cladires 2k16 - National Level Technical Symposium of Meenakshi college of Engineering.*

### 3. Salman Fayas,Ajith Kumar,Lakshman Prasad, Revanth Kumar (III Year)

*Won First Place in MODEL MAKING event during Cladires 2k16 - National Level Technical Symposium of Meenakshi college of Engineering.*

### 4. Arjun.S.A. and S.Venkatesh (IV Year)

*Won First Place in VISION QUEST (CADD) event during Reconin '16 - National Level Technical Symposium of St.Joseph's College of Engineering.*



## 5. Deepak Kumar.D (IV Year)

*Participated in BILL BOARD event during Ace Tech Fest '16 - National Level Technical Symposium of Easwari Engineering College.*

*Participated in One Day Technical Symposium WAFES 2k16 organised by Meenakshi Sundararajan Engineering College.*

## 6. S.Janani (IV Year)

*Participated in BILL BOARD event during Ace Tech Fest '16 - National Level Technical Symposium of Easwari Engineering College.*

*Participated in One Day Technical symposium WAFES 2k16 organised by Meenakshi Sundararajan Engineering College.*

## 7. Krishna Shrija and Reshma.S.(IV Year)

*Won Third Prize in PAPER PRESENTATION event at Chakravyuha 2016 - National Level Technical Symposium of Gojan School of Business and Technology.*

*Won First Prize in PAPER PRESENTATION event at Civinan'16 - National Level Technical Symposium of SMK Fomra Institute of Technology.*

*Won Second Prize in TECHNICAL QUIZ event at Civinan'16 - National Level Technical Symposium of SMK Fomra Institute of Technology.*

*Won First Prize in PAPER PRESENTATION event at Colosseum'16 - National Level Technical Symposium of SMK Fomra Institute of Technology.*

## 8. Srivatsan.D. (IV Year)

*Won the TECHNICAL PROJECT COMPETITION conducted during Civil Engineering Industrial Internship by Expersthub Industry Skill Development Centre.*

## EXTRA-CURRICULAR

### 1. Gokula Krishnan, Sheshathri Kannaiyan.E and Surya Prakash.S (II Year)

*Participated and won the second place in quiz conducted by NSS on NSS day celebration – SSNCE.*

### 2. Gokula Krishnan. B (II Year)

*Represented Cyprus at the UNGA – DISEC in SSN MUN.*

### 3. Kannan Meena (II Year)

*Honorable mention for representing Israel at M.O.P MUN.*

*Adjudged as one of the finalists of SSN Best speaker contest.*

*Participated in SSN MUN and represented Bangladesh.*

*Participated in IIT Madras MUN and represented Japan.*

*Represented United Kingdom at WHO in SRM – Ramapuram MUN.*

*Honourable mention for representing Saudi Arabia at the UNHRC in SSN MUN.*

## 4. Priyadarshini .K.P (II Year)

*Represented Cuba at the UNHRC in SSN MUN.*

## 5. Priyanka. C (IV Year)

*Participated in Choreonight, Festember 2016 - NIT Trichy.*

## SPORTS

### 1. Prathiba Devi. N - Badminton (II Year)

*Bagged the third place in Badminton at SSN trophy 2016.*

*Winner of Anna University Inter-Zonal Tournaments 2016-17 held at Kamaraj College of Engineering and Technology , Virudhunagar.*

### 2. Dharma Sekaran.K - Badminton (II Year)

*Winner of the intercollege collegiate in Badminton - SAIRAM TROPHY.*

*Participated in Inter University Tournaments held at SRM, Kattankulathur.*

*Secured Second place in Badminton at SRM Trophy.*

*Bagged the Second place at All India Intercollege Match, Manipal University.*

*Semi-finalist at All India Intercollege Match, Bangalore.*

*Bagged the second place in Badminton - SSN Trophy.*

*Represented Anna University and won Second place in Badminton organised by TamilNadu Inter Universities, Ramananthapuram.*

*Declared winner in the LI-NING TN JUNIOR STATE (Under 19-DOUBLES) organised by TN Badminton Association - DINDIGUL.*

*Zone -3 winners - SSN.*

*Winner of U-19 Singles and Doubles organised by Virudhunagar District Badminton Association - Virudhunagar.*

*Secured the second place in Badminton at Kongu Trophy , Kongu College, Erode.*

*Interzone winners in Badminton at KSR college , Trichengodu.*

*Selected for Anna University team.*

*Secured the third place in TN Universities Chief Minister's Trophy.*

### 3. Dinesh Kumar. P - Volley Ball (II Year)

*Was a member of the Volleyball Team which participated in the SSN Trophy.*



## 4. Chandramouleeshwar.G - Badminton (II Year)

*Declared winner in the LI-NING TN JUNIOR STATE (Under 19 DOUBLES) organised by TN Badminton Association, Dindigul.*

*First place in U-19 BOYS DOUBLES organised by Thoothukudi District Badminton Association Sterlite Trophy-2015, Thoothukudi.*

*Secured Third place in Junior Mens Doubles organised by – Pondicherry State Badminton (Shuttle) Association.*

*Winner of the intercollege collegiate in Badminton. - SAIRAM TROPHY.*

*Secured Third place in Shuttle-Badminton(MEN) in 14th JETS 2016, St. Josephs College of Engineering.*

*Bagged the second place in Badminton - SSN Trophy.*

*Secured Second place in Badminton at SRM Trophy.*

*Zone -3 winners - SSN.*

*Secured the second place in Badminton at Kongu Trophy , Kongu College, Erode.*

*Interzone winners in Badminton at KSR college , Trichengodu.*

*Selected for Anna University team.*

*Secured the third place in TN Universities Chief Minister's Trophy.*

*Secured the third place in Singles and Mixed in Badminton at Karur State Match.*

## 5. Yogesh Rajagopalan - Badminton (III Year)

*Runner Up in Kongu trophy*

*Winner in the Zonals Tournament*

*Runner up in SSN Trophy*

## 6. Rahul Raj Ravi - Tennis & Squash (III Year)

*Won Gold in The Tennis Interzone*

*III Place in SSN trophy (Tennis)*

*Won Gold in The Squash Interzone*

## 7. Sai Pradeep.M - Basketball (III Year)

*Part of Winner team National Level Inter-Engineering Sports Meet SUMMIT'16 held at MIT Pune.*

*Runner up in Zonals*

## 8. Aravind.V. - Basketball (IV Year)

*Awarded as BEST PLAYER and also part of Winner team.  
National Level Inter-Engineering Sports Meet SUMMIT'16 held at MIT Pune.*

## 9. Arjun.S.A. - Basketball (IV Year)

*Part of Winner team*

*National Level Inter-Engineering Sports Meet SUMMIT'16 held at MIT Pune.*

## 10. B.V. Ramya Tulasi - Badminton (IV Year)

*III Place - Women Doubles, Senior Championship , Tamil Nadu Badminton Association*

*III Place - Mixed Doubles, Senior Championship , Tamil Nadu Badminton Association*

*III Place - Women Singles, Senior Championship , Tamil Nadu Badminton Association*

*Runner Up - Women Singles, Tamil Nadu Senior State Ranking Badminton Tournament - 2016*

*Runner Up - Women Doubles, Tamil Nadu Senior State Ranking Badminton Tournament - 2016*

*Participated in South Zone Inter State Badminton Championship 2016 organised by Kerala Badminton Association.*

*Selected for the Premier Badminton League 2017, as a part of Chennai Smashers Team.*

## SCHOLARSHIPS

### MERIT

Srilekha.V (II Year)

Vaishavi.K (II Year)

Priyadharshini.K.P (II Year)

Rahul Goenka (II Year)

Kannan Meena (II Year)

Ajay S (III Year)

Adithyan M P (III Year)

Sathya Priya S (III Year)

Dachina.G. (IV Year)

Gayathri.K. (IV Year)

Uma Devi.S. (IV Year)

### SPORTS

Chandramouleeshwar.G - Badminton (II Year)

Ramya Tulasi - Badminton (IV Year)

Nithin Thomas John - Football (IV Year)



# VOICE OF CHAMPION



How many of us have actually followed our dreams and aspirations? How many of us still dream but give up on them very easily? How many of us have regretted giving up on things we have always wanted to take up? How many of us were forced to leave behind our dreams because they seemed small or uninteresting to others? - We have all been in such situations - forced to take up our life decisions to satisfy others around us. If this had happened to every single person's life, then we would not have had some of the very famous champions we have today! It does take in a lot of courage and determination to dream big and live your dreams. We find very few people in our lives who go with this saying. The people who actually steered their lives to follow their passion and are successful now but we should know that they have all faced a tough journey too. The most important part of it is, their determination and the numerous hurdles they have crossed without giving up and these have certainly led them to the right track. The place where they belong.

In the current days, where education is given a top notch than talent and passion, a few exceptions do exist. These are people who balance their passion along with education and excel in both. We have all played when we were children. We have all dreamt of becoming a famous sports player, who will be cheered and supported by all during those huge matches. We have all put our selves through their shoes and helmets and have visualised of such a future. How many of us are actually working on it? How many of us barely remember those dreams? How many of us still regret not becoming what you wanted to be? Just like any one of us, Raniya Tulasi, a final year student, started playing badminton at a young age along with her friends as a pastime. She did not know then that badminton was something that will mould her life to an unexpected extent. As she started to play badminton more often, she decided to take her liking to the next step. She wanted to become better at it and went for professional training. It has been six years now since she has put in all efforts to practice badminton and excel in it. Her persistent determination and love for the game has been a major reason behind all the laurels she has won.



Every champion have their own inspiration who constantly motivates them and never let go off the fire in them to pursue what they dream off. The same was the case with Ramya. When asked about who was her inspiration to play badminton for so long, her answer was "It was definitely my badminton coaches Jerry Martin and Siddharth Jain who have never failed to motivate me. I was always amazed by the way they played and always dreamt of playing like them." We always do get motivated when we get good at something. Similarly, every match which Ramya was a part of, was either her motivation for more success or her lesson to perform better. Every match she won was the driving force for her to keep her going to do even better in the upcoming matches. Giving up or losing hope just did not come anywhere near her.

The 21-year old has played several State level, National Level matches and won several trophies. She is a part of International matches too now. The latest of all her success stories is her selection for the Premier Badminton League as a part of the Chennai Smashers Team along with P.V.Sindhu in it! What more can someone expect than to be a part of a team with Olympics Silver Medallist and other great players in it. When Ramya was asked to describe her feeling in a word on being selected for PBL, her instantaneous reply was "Blessed!" It was totally an unexpected thing even for her and she told that it took time for her to digest the fact too! When asked her about how it happened, she added enthusiastically, "I was selected in the team as a mixed doubles and women's doubles player



performance at the National tournaments and National ranking. My highest ranking in the country is 9. To all this, a bit of good luck spiced it up and it happened..!"

Ramya took this opportunity also as a platform to learn and told "I'm looking forward to PBL more as a learning experience. Everyone in the team are very experienced in the International circuit. I'm a doubles player and my team has Chris and Gabby Addock for mixed doubles who are my favourite players and also Kolding for doubles. So I'm looking forward to learn the European doubles techniques which are different from ours. I'll be going there open minded to learn new things and give my best". Her parents have always been her constant pillars of support for her, encouraging her throughout. They wholeheartedly let her chase her dreams and most importantly trusted her decision. Ramya added, "I would like to thank my department HOD, faculty, the office staff and my classmates for all their support and timely help. They never turned their back to me when I needed them. They have been a major support to me. Helped me with my attendance, studies, project work, assignment and everything. Also our physical director Dr. P. Balaji without whose support I can't imagine badminton



# Smashers call-up takes Ramya by surprise

T.N. RAGHU  
CHENNAI, NOV. 9

Chennai Smashers owner V. Vijay Prabhakaran, son of DMDK chief Vijayakanth, was upset last year that there was no player from Tamil Nadu in his team for the inaugural Premier Badminton League (PBL). He vowed that the Smashers would at least have one Tamil Nadu player on their roster for season two. By picking B.V. Ramya Tulasi, an engineering student from Chennai, in the auction in New Delhi on Wednesday, he has kept his word.

If retaining Olympic star P.V. Sindhu was Prabhakaran's primary

aim in the auction, he had also not forgotten his resolution to get a Tamil Nadu player on board. "In the meeting of team owners on Tuesday, I fought for the inclusion of a Tamil Nadu player in the auction pool. I felt having a team in Chennai without a player from Tamil Nadu isn't right. I would have loved to have two TN players but I could, unfortunately, get only one. I hope Ramya is the first of many Tamil Nadu players in our team," he said.

Needless to say Ramya, a final year civil engineering student at S.S.N. College, is over the moon. She hadn't imagined that she would be a team-mate of Sindhu in the second



B.V. Ramya Tulasi

edition of the PBL. "I had no clue that I was in the bidding race. When I came

to know about my selection from a friend on Wednesday evening, I was shocked because it was totally unexpected. I realised that the news was true only after I got a call from the team's coach, Arun Vishnu. I think a place on the roster of the Smashers is a reward for my hard work in the last four years. I can't wait to train alongside Sindhu and other international stars," she said.

The doubles specialist trains at New Vision SmashBounce Badminton Academy at Valasaravakkam. "I'm fortunate that an Indonesian coach visits the academy regularly. I also owe gratitude to my college PD P.

Balaji who rekindled my interest in the game," Ramya said.

According to Ramya, her father, B.N.S. Phalam, is the happiest man in the world. "My dad is more excited than me after hearing about my selection. He is such an inspiration for my career that I can't think of playing badminton without his support," she added.

Even though the Smashers rookie is in the midst of her examinations, she isn't giving her racquet rest. "I continue to train because there is always a break between two papers. After my last exam on December 8, my focus will only be on the PBL," Ramya said.

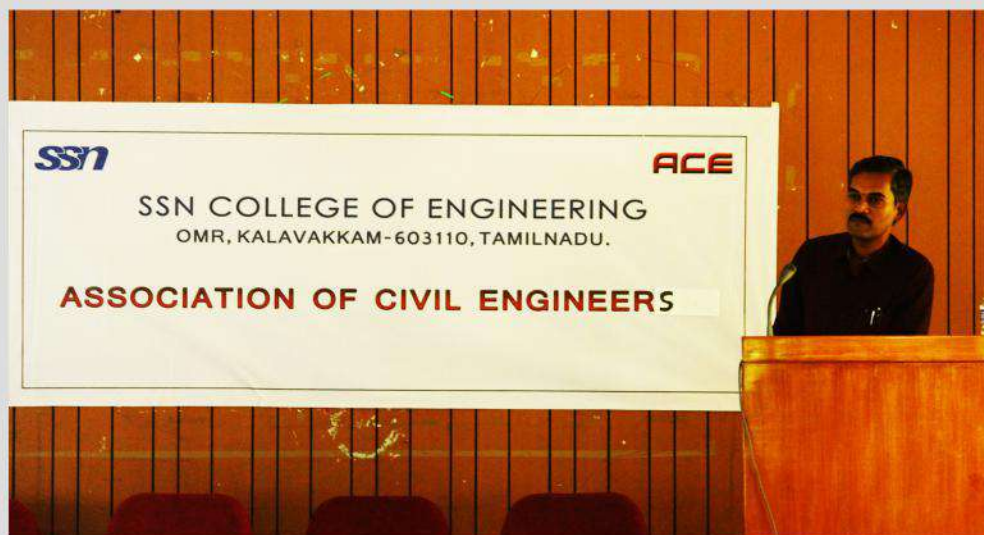
after joining college. My parents and all my coaches too who have been the reason for who I am now."

A few more final questions were put forth to Ramya. When asked if she had ever thought of taking up sports as her career, she answered, "Certainly Yes. I did have and I still have but not at the cost of leaving my education. I would like to balance both. I would also love to do something for the development of the sports in the future." I have noticed that Ramya has always managed to score well in her exams despite the fact that she would not be able to attend most of her classes due to matches and she had to do most of the learning by herself. She utilised her presence in class to the maximum extent and always tried to grasp the most out of them. She is currently preparing for her GMAT exams too and says that she wishes to do an MBA in the near future.

Such people with never ending resolution to achieve their passion are very rare these days and we are really happy to have Ramya as our friend who has never failed to make us proud. We are very sure that she has already been and will continue to be a constant inspiration to many others and we wish her All the very Best for all her future endeavours.



## ASSOCIATION OF CIVIL ENGINEERS (ACE) 2016-2017 - INAUGURAL



*B.N.S.Chalam, IRSE during inaugural*

The association inaugural of Civil Engineering department took place on August , 2016. B.N.S.Chalam, IRSE, Senior Divisional Engineer, Southern Railways, Chennai graced the event. The auspicious day began with a Prayer song, continued by the lighting of the lamp. Our Chief guest, then proceeded to address the students.

He enthralled the students by delivering a lecture on the job opportunities available for students currently pursuing their B.E in civil engineering department and gave them a broad insight about the IES (Indian Engineering Service) examination, directed by the Union Public Service Commission for recruitment of engineers railway and roadway sectors. His talk also focussed on the four stages of IES examination comprising of six tests, the syllabus, the aggregate mark that the students would require to get through and an interview that the selected candidates should face. He walked the students down his memory lane and showed them a vivid image of the ways he had adopted for preparing and how he came out with flying colours. He also added that taking up IES examination and entering the government sector was the best thing a student can opt for after stepping out of their Under Graduation programme. He gave students a clear intuition of choosing the right time and methodology to be followed while preparing. He also urged students to work hard and added that knowledge can't be developed at the dusk of the day and that it has to be nurtured right from the time a person wakes up. He stirred the interest of the students by throwing light on pay package and the number of candidates who are taken in. In a nut shell, his talk motivated students to think about opting for a career in government sector by taking up the IES examination.

REPORTED BY: **Saranya.S. (II Year)**



## **INDIAN CONCRETE INSTITUTE STUDENT CHAPTER - WORKSHOP ON FIBRE REINFORCED CONCRETE**

The student chapter of Indian Concrete Institute had organized a guest lecture on “Fibre Reinforced Concrete” for the students of II, III and IV years. The speaker for the lecture was Dr. Sunitha K Nayar, Department of Civil Engineering, IIT-Madras, who has specialized in “Design of Fibre Reinforced Concrete Pavements and Slabs-On-Grade”.

She began the presentation by first enlightening the students about special concrete and what enabled the development of special concrete. Concrete is weak in tensile strength and has low strength to weight ratio. This results in larger members which may lead to space and visibility restrictions. In order to achieve slender members with high strength, the ingredients and the mix proportions had to be altered by adding supplementary compounds. Over time with advancements in engineering, new super plasticizers and chemical admixtures were developed. Some of the special types of concrete are high strength concrete, light weight concrete, shotcrete, fibre reinforced concrete, self compacting concrete and so on.

She then moved on to talk more about ‘Fibre Reinforced Concrete’. Cracks in concrete are due to low tensile strength or inadequacy of design variation in dimension. Cracks may also be the result of resistance to free movement. In order to control cracks, it is necessary to improve the tensile strength or improve crack resistance by adding fibres. And thus came, the idea of fibre reinforced concrete. Fibre reinforced concrete can be defined as a composite material consisting of mixtures of cement, mortar or concrete and discontinuous, discrete, uniformly dispersed and randomly oriented fibres. The fibres increase ductility and delay crack propagation.

Load deflection curves have shown that in normal concrete after cracking begins, the cracks begin widening at a fast rate. However, in FRC the fibres bridge the cracks and act as a cello tape. It is generally assumed that there is zero strength at cracks. But in FRC, due to fibre bridging, the stress is transferred to the other side of crack. Dr. Sunitha also stressed upon the fact that ‘Fibres do not necessarily increase tensile, flexural or compressive strength’. If the strength is to be increased, very high volume of fibres need to be used. The normal dosage of fibres is usually less than 1% of the volume of concrete.





## INDIAN CONCRETE INSTITUTE

The various types of fibres which are used in FRC are metallic (steel, stainless steel), polymeric (acrylic, polyester, nylon), carbon, mineral (glass, basalt) or naturally occurring (jute, coconut).

The mixing of FRC is fairly simple. The fibres are dumped into the dry mixture. The mixture is then added to the conveyor belt carrying coarse aggregate. It is then added to the transit mixer. However, there are a few issues in FRC mixing. It results in balling. This can be prevented by designing the matrix suitably by increasing the fines content or by adding a super plasticizer. Dr. Sunitha related that though the IS code provides for about 70% of coarse aggregate and 30% of fine aggregate, this would not work with FRC. Also, it is highly advised not to use needle vibrator as this may make the fibres move down. The most suitable method of vibration is the screed or table vibration method. Excessive vibration should be avoided. Vacuum dewatering is also not recommended for FRC. A commonly observed problem with FRC is the protrusion of fibres. This can be solved by using power trowelling.

Dr. Sunitha also gave some applications of FRC. It is widely adopted for shell structures, slabs-on-grade pavements, tunnel linings, precast panels and precast sandwich pipes. She also gave reasons as to why FRC is not being adopted widely. Till date, FRC seems to lack complete material characterization. She concluded her lecture by saying that more research work and testing needs to be done in order to understand the FRC even better and to put it to full use. She even encouraged the students to learn and study more about FRC.

Overall, the lecture was very informative and interesting to the students. Dr. Sunitha kept the students engaged throughout the lecture and kept them thinking by giving good examples and illustrations.

REPORTED BY : Roshni.A. (IV Year)



## INVENTE - DISCOVER YOURSELF



SSN has always been well known for its excellent symposiums conducted by all the eight departments, once a year for the benefit of students - to learn and showcase their skills and challenge them amongst several other students like them. These National Level Symposiums have always stood apart and have proved to be one of the best platforms by the students and for the students.

This year, 2016 received a marked change - A change which was about to bring in something new! And it was UNITY! "Invente" was born this year with a notion of keeping things big and diverse and this obviously needed team work. All the eight department's symposiums amalgamated to form one single massive event of the year - A Technical Festival! Invente, though new and uncertain, brought in students from all departments together to host something of a greater level and they all did make sure it was a success.

The first year of INVENTE, SSN's National Level Technical Festival took place on the 9th and 10th of September, 2016 in a grand and successful manner. It was a platform built around encouraging budding engineers to showcase their talents with unbridled enthusiasm. There were 65+ events and 4 workshops with 8 lakh worth prize money.



*The presidents of the seven departments with the college management*

The Fest started off with a grand inaugural with Prof.M.S.Ananth, former Director of IIT Madras as our Chief Guest of the day. His motivating talk indeed was welcomed by all the students and also the professors. This was succeeded by the inaugural of the Magazine "TechVibe" which had articles and news regarding various wonderstruck innovations of the recent times written by students from all departments.

After the inaugural, the day progressed with all events scheduled for that day happening at various locations. The events scheduled for the second day also took place with no delay and the crowd was overwhelming and excited about the entire fest.



The Department of Civil Engineering had organised 9 technical events and 1 workshop scheduled on both days. The events were well structured in such a way that participants were able to take part in more events. Some of the events were, "Bridge-IT", "In-QUIZ-itive", "Paper Presentation", "Civilian's Tech Hunt", "Concrete Challenge" and much more. The workshop was about the "Theory and Working of a Total Station", an instrument which is having sundry uses in the modern days and is of great help to the Civil Engineers.

The two day fest took place in a successful manner with great cooperation and organisation from all sides. The participants liked the wide spread of events and considered it a platform to challenge their skills and learn new skills too. Students from almost 50 colleges came for Invente and their reviews were impressive and very encouraging. The first year was definitely a successful one with lots of challenges and obstacles which we overcame as a Team and that was the most important reason for such a grand event to be set on rolls within a short span of time in a grand and exultant manner. We are very sure that the upcoming years of Invente will also be successful!



*Paper Presentation*



*Bridge-It*



*Theory and Working of a Total Station*

REPORTED BY: **Rashmi Nagendran (IV Year)**



## **NATIONAL CONFERENCE ON ADVANCES IN CIVIL ENGINEERING**

The National Level Conference on Advances in Civil Engineering organized by the Department of Civil Engineering, of Sri Sivasubramaniya Nadar College of Engineering on 15th September 2016, was a resounding success, which saw the participation of several dignitaries from a plethora of colleges in Tamil Nadu.

The conference commemorated with a prayer song to invoke the blessings of the Almighty followed by the introduction of the esteemed Chief Guest, Mrs. Dr. K P Jaya, Professor, Anna University by Dr.Sreehari, Professor, Department of Civil Engineering. The chief guest's address emphasized the importance of having fun while learning and various intricacies of Prestressed Concrete peppered with examples from her vast experience. Succeeding a ten minute break, session 1 of the conference commenced.

The delegates and audience assembled for the second session of the Advances in Civil Engineering, national level conference hosted by the Department of Civil engineering of SSN.

The Guest of Honour for the afternoon session was Dr. C.Umarani, Professor, Anna University.

The delegates received their certificates of participation from our Guest of Honour Dr. Umarani.

Vote of thanks was proposed by Dr. Srinath Rajagopalan, Professor, Department of Civil Engineering, thus ushering the end of the conference which achieved what it strived to do, to present a stage for budding talents.



***Dr.K.P.Jaya,  
Prof., Anna University***



***Dr. C.Umarani,  
Prof., Anna University.***

**REPORTED BY: Krishna Shrija (IV Year)**



## INDUSTRIAL VISITS

### RAMCO RMC PLANT (Second Year Students)



The class of 2015-2019, second year students of the department of Civil Engineering undertook a local industrial visit to the Ramco Ready Mix Concrete Plant, Vengaiwasal on 15th July 2016. Under the able guidance of Dr.Mahalingam and Mrs. Sumetha.R, the students embarked on the educational excursion with unflagging enthusiasm.

On reaching the plant at 10 a.m., the class was divided into three batches. Each batch was accompanied by a quality control engineer at the site, who led the students through the plant and explained the working procedures in detail. Initially, the students were shown the raw materials used in the production of concrete in the plant. Quarry dust and river sand were used as fine aggregates and 12mm stones were the coarse aggregates employed in the plant. Fresh water was pumped throughout the plant. Ramco cement stored in 5 silos completed the list of raw materials.

The engineers pointed out that the cement was connected to the mixer through pumps, as was water. Coarse aggregates and fine aggregates were collected and measured by means of a scrapper, and were introduced into the mixer by means of a gate controlled by hydraulic pressure. Admixture was also added and the engineers informed the students that the mixer rotates at 60 rpm, after which it is poured into the concrete mixing transport trucks standing below. The batching process is controlled by means of a computer into which required measures of materials are inserted depending on the type of concrete. The plant has produced a concrete mix of maximum strength 7.5 MPA at grade 53.

The students were further shown the machines used to pump the concrete at the construction sites. The concrete lab was the last stop, where the class was taught about the slump test, compaction test, compression test etc. They were further introduced to the flow test mechanisms for cement and concrete, the filter tests for the aggregates, the automatic concrete production machine for test purposes, the aggregate strength test, Vicat apparatus, and the curing process.

With inputs from the accompanying staff, the students gained a wealth of information and understanding of the concrete production process. This educational experience ended on a sweet note with the class representatives thanking the engineers on site for their patience in imparting their knowledge.

REPORTED BY: **Kannan Meena (II Year)**



## ESTHELL GOLDEN SQUARE CONSTRUCTION, Velachery (Third Year Students)

The civil engineering department of SSN college of engineering had arranged an industrial visit for the 3rd year students. We, the students of 3rd year, visited the Esthell Golden Square construction site in Velachery. It is an ongoing mall and multiplex construction site.

In the initial segment of our industrial visit the site in charge gave health and safety instructions to us and provided safety jackets and safety

fundamental acquaintance as with how the construction process takes place by explaining different phases of the construction work. Since the construction was in the initial stage we were provided with explanations regarding the laying of foundation of the building in relation to the drawings and different phases of construction

The site engineer likewise gave us an idea regarding the excavation process and how the depth of foundation is decided.

Next we proceeded onward to the area where casting of slabs was in progress. Here, we were guided about the shuttering, the formwork and reinforcement details of the slab. We were additionally instructed about the motivation behind these procedures. We were also guided about the design process of the different segments of building such as beam, column and slab and how the reinforcement detail for all these segments is provided on the basis of its design. The site engineer shared his experience about challenges which happens while completing construction work and how it contrasts from the different ideas that are being instructed in the books.

Then we were instructed about the distinctive materials utilized in the construction work. Most of these materials was shown to us and their principle reason or use for being utilized as construction material was educated. Finally after briefing about the project with the help of drawings and showing us around, the site engineer had an open discussion session with students.

REPORTED BY: Amudhini.K (III Year)



*Esthell Golden Square Construction, Velachery*



## CHENNAI PORT (Final Year Students)

*“The Jawahar dock which has 6 berths mainly handles coal, fertiliser, iron ore lumps, pellets, edible oil, and Phosphoric acid. Dr. Ambedkar dock with 13 berths, has car and cruise terminals and chiefly handles general cargo, cars, granite steel, and food grains. Bharathi dock has 3 berths and three terminals, namely, container terminal, iron ore terminal, and oil terminal. It mainly handles containers, iron ore, and POL (petroleum, oil and lubricants).”*

An industrial visit was organized by our department for the students, for us to better understand the theoretical concepts which was dealt with during our study of harbor engineering.

We noticed that the Chennai port is divided into various zones, namely, north, central and south Zones and fishing harbors. The port has 3 docks, Ambedkar dock, Satabt Jawahar dock and Bharathi dock, with each dock with specified number of berths depending on its capacity. The berths handle containers as well as liquid and dry bulk and breakbulk cargoes.

We also got an opportunity to observe the structure of breakwaters, jetties, buoys and relate it to the concepts which we read in our course. We also observed that a separate terminal was allocated for naval operations.

Chennai port is served by Chennai Beach railway terminus, and internal railway networks runs along the port to evacuate the containers from the port.

Huge sized vessels were anchored along the berths. We had an opportunity to witness the loading of a vessel with Hyundai cars for export. I would like to thank our department management for organizing this industrial visit which enabled us to better understand the structure of a harbor and this gained knowledge would be highly useful for us in coming years.

REPORTED BY: **Rekha.J.(IV Year)**



## About Bentley Institute

The mission of the Bentley Institute is to advance infrastructure professions by empowering students, academic institutions, and professionals with the latest software technology, market-driven research internships, scholarships and continuous learning through publications, webinars, conferences, live and on-demand courses, and in-product instruction.

## About Bentley systems, Incorporated

Founded in 1984, Bentley has more than 3,000 colleagues in over 50 countries, more than \$600 million in annual revenues, and since 2008 has invested more than \$1 billion in research, development, and acquisitions. For more information visit us at [www.bentley.com](http://www.bentley.com)

## Supporting Students and Educators

Bentley Institute is dedicated to lifelong learning for infrastructure professionals. The Bentley Institute Academic Program is designed to bridge the gap between academic learning and the technology skills needed by industry, by helping students prepare for the future.

Educators and students can take advantage of a variety of tools and resources in the Bentley Institute Academic Program, to teach or learn best practices for advancing infrastructure. We are committed to help prepare students for tomorrow's infrastructure work force, with access to software, online learning, transcripts and certificates, support communities, books, and other resources to help students succeed.

## Student Server

Via STUDENT server, students and educators can gain personal access to the same powerful software that is in use by infrastructure professionals, along with learning resources to help you succeed. You can learn whenever and wherever you like, and build a transcript with certificates of completed learning to showcase your technology expertise.

STUDENTserver is your gateway to a range of on-demand videos, hands-on practice workbooks, and skills assessments. Visit [www.bentley.com/studentserver](http://www.bentley.com/studentserver).

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## Bentley Institute Student Ambassador Program

The Bentley Institute Student Ambassador Program establishes a global network of student ambassadors acting as liaisons between Bentley and their schools, exchanging ideas and methods of leveraging technology to effectively prepare students for careers in infrastructure industries.

A Bentley Institute Student Ambassador is the go-to person on campus who helps fellow students and educators to become acquainted with Bentley software, with inspiring infrastructure projects, and with developments in industries that are advancing the world's infrastructure.



Ambassadors lead activities on their campus that support learning and help their fellow students to use software in fun and creative ways.

## Role and Responsibilities of student ambassador

- Complete the orientation and familiarize yourself with ambassador materials
- Introduce Bentley and the Bentley Institute Academic Program at your institution
- Facilitate two way communication between the institution and Bentley
- Work with Bentley's Academic team to organize, promote, and coordinate activities leveraging technology
- Map course/project requirements against the relevant Bentley software, and share with peers how that software will add value to their courses/projects
- Guide and assist peers in becoming proficient in the use of Bentley software
- Follow Bentley on social media and share timely updates with your peer network
- Keep faculty members informed of planned activities
- Actively help fellow students to register for Bentley's STUDENTserver
- Coordinate with Bentley Institute Student Ambassadors from other courses / institutions
- Document and communicate any opportunities, requests or challenges
- Periodic review of plans and progress

## Bentley Communities

Join Bentley Communities to get product support and connect with the best in the industry. Bentley Communities is the place to find how-to tips, best practices, and advice from peers and Bentley subject-matter experts.

Join the Bentley Academic Programs community to access knowledge articles about academic learning resources and programs, to participate in forums, to follow news in our blog, to view the calendar of upcoming academic webinars and events, and more. Visit [communities.bentley.com](http://communities.bentley.com).

## Social Network

Follow Bentley Institute Academic Program on Facebook and on YouTube to stay current with news about upcoming webinars, events, new technology, learning resources, Bentley Institute Student Ambassadors, and more.

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## Student Ambassadors -:

Akkineni Surya Teja (IV Year)  
Ramya Sajeevan (IV Year)



CEPA - Civil Engineers Progressive Association, is an organization which serves as a platform for Emerging Civil Engineers to develop and progress together. Their main objective is to nurture and encourage emerging civil engineers by promoting fellowship among them and all other effective means as deem expedient.

Nijandhan Hari, Secretary - CEPA and our Alumni (2012-2016 Batch) took time to answer a few questions for us regarding CEPA. Here they are.

### **Why was the necessity of this Association felt?**

"It is widely known, spoken about and for sure undeniable that the quality of engineering graduates in India has been on a sharp decline. Civil Engineers have been the worst hit due to the substandard observed country wide in our education system and also in the job opportunities available. In order to overcome this, the need was felt for all the emerging engineers to join hands and work together to improve ourselves as a whole and engineer our way to a better future."

### **What is your vision?**

"Our vision at CEPA is to expand our organization to all the Engineers out there who can work with us, which also includes tie-ups with the leading firms in our industry so that our members can feed off from the experience and in turn make them more employable. We are also looking to create placements and job opportunities for our members."

### **What are a few of your initiatives taken up so far?**

"We have got a long way to go on our initial plans, but the initial step has been taken. We have conducted three meet ups this year, secured tie-ups from three construction firms and our core team is working on a Cost analysis project in Today's Construction Field. The core team also embarked an industrial training visit to a Steel plant expansion in Kuppam, Andhra Pradesh which will be the first of many. We are also ready to encourage, help and fund innovative projects if our members come forward."

## What does the Association plan to do in the near future?

"We have a lot planned for the year 2017. Our aim in the near future is to engage our members more frequently with more productive meet ups, workshops and industrial visits."

## A young team working towards a better future for the current generation engineering graduates. How do you feel?

" It's too early to comment on that, we are still on our initial stages. We are hungry to succeed and also are open to anyone who has the appetite to come join us and embark on this journey! We are looking forward for a more inspiring path throughout."

## Who can be a part of CEPA and how to join?

"Any Civil engineer who has graduated can apply for membership in CEPA. Additionally, students from third and fourth years are also eligible."

## Who are the core team members?

"Our Core team or the "Executive Committee" team Includes :

**Nitesh KP**, President (2012 - 2016, SRM Easwari Engineering College)  
**Nijandhan Hari**, Secretary (2012-2016, SSN Engineering College)  
**Vishwanath**, (2013 - 17, SRM Easwari Engineering College)  
**Pawan Kumar** (2013-17, Sri Venkateswara College of Engineering)  
**Siddarthan** (2013-17, Rajalakshmi Engineering College)  
**Lavanya** (2012-16, SSN Engineering College)  
**Gokul naath** (2013-17, SRM Easwari Engineering College)"

## Contact details:

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## CHENNAI'S TERRIFYING DISASTER

- Poonguzhali. A (II Year)

The Rainfall brought happiness to the Tamil Nadu people at the beginning of winter season because of hot summer they had faced in 2015, but the continuation of rainfall had become a threat to the Tamil Nadu people especially to the Chennai individuals.

The 2015 South Indian floods resulted from heavy rainfall generated by the annual northeast monsoon in November–December 2015. They affected the Coromandel Coast region of the South Indian states of Tamil Nadu and Andhra Pradesh, and the union territory of Pondicherry, with Tamil Nadu and the city of Chennai particularly hard-hit. More than 500 people were killed and over 18 lakhs people were displaced. With estimates of damages and losses ranging from nearly ₹200 billion to over ₹1 trillion, the floods were the costliest to have occurred in 2015, and were among the costliest natural disasters of the year.



### REASONS:

#### 1) *Improper waste management*

The drainages in Chennai are filled with sediments and these sediments are blocking the water. Under central government scheme during the last government tenure in Tamil Nadu a project which is meant to improve the drainage system which could hold on any level of floods is initiated. Eventually this project has sent into racks once after the new government has taken charge. The industrial wastes and all other wastes are also being sent into the same drainage which is meant to deal only the flood water. Man would have won on many things but he has to submit himself before nature. It is time for us to learn lessons from countries like Japan which is well versed to handle any natural calamities.

#### 2) *Construction on lakes*

Chennai has more than 600 lakes but now the number has fell down to 10. The lakes were eventually being piled up and massive construction took place on these sites. Velachery which is one of the most important places in Chennai is developed on wet soil. Velachery is more than 5500 hectares and it is completely on lake only. Usually the land here absorbs the water when the floods arrive. As now the land has been filled with constructions the water is not getting sinked.

#### 3) *The banks of rivers were occupied making the rivers narrow*

Three main rivers flow through Chennai namely Kuvam, Adyar and Kosastha Talayar. These three rivers play a major role in moving the flood water into Bay of Bengal. These river banks were occupied by occupants which eventually has narrowed the river flow. This is one of the main reason for the flood water to get stragmented. There was no proper care taken on the Buckingham canal which is also a major path leading the flood water into the sea.

#### 4) *No improvement in Infrastructure*

Chennai homes more than 1 crore population. The city has been drastically improved from the past four years and real estate has seen some new turns in the city. There wasn't any keen interest on the infrastructure development with the growing pace of city. The outskirts of the city which hosts many software companies still doesn't has those proper drainage system and even proper roads which could address the basic needs of the people, forget about the floods.



## CONSEQUENCES OF FLOODING:

Supplies of basic necessities, including milk, water and vegetables, were affected due to logistical difficulties. During the December floods in Chennai and the adjoining areas, milk packets sold for ₹100, five times more than their usual cost. Water bottles and cans were sold at prices between ₹100 to ₹150. Vegetables were sold at least ₹10 to ₹20 over and above their normal average cost at the wholesale level.



Apart from basic necessities, fuel supplies and travel were greatly affected, especially in Chennai. Numerous accounts of price-gouging were reported; airfares to and from for most parts of South India peaked to almost 10 times over their normal price. A round trip fare from Mumbai or New Delhi to Bangalore, Karnataka was sold by airlines like jet airways at rates of almost ₹1 lakh, a trip which would have ordinarily cost between ₹10,000 to ₹20,000. Apart from airfares in South India, airfares also increased for other connections within the country, due to disruptions in rail services. In response, the Ministry of Civil Aviation warned companies-

Apart from basic necessities, fuel supplies and travel were greatly affected, especially in Chennai. Numerous accounts of price-gouging were reported; airfares to and from for most parts of South India peaked to almost 10 times over their normal price. A round trip fare from Mumbai or New Delhi to Bangalore, Karnataka was sold by airlines like jet airways at rates of almost ₹1 lakh, a trip which would have ordinarily cost between ₹10,000 to ₹20,000. In Chennai, over 1.5 lakh (150,000) street vendors sustained losses of over ₹300 crore. Popular television networks, namely Puthiya Thalaimurai, Jaya TV and Mega TV halted services following flood-related technical difficulties. Motorcycle producer Royal Enfield shut its Chennai offices on 1 December, as well as its plants in Thiruvotriyur and Oragadam, which had already lost the production of 4,000 motorcycles in November.

## REMEDY MEASURES:

Tamil Nadu Chief Minister Jayalalithaa announced an initial allocation of ₹500 crore for relief and rehousing, with ₹4 lakh for each family who had lost relatives in the floods. The Indian Air Force deployed four helicopters to airlift flood victims from inundated parts of Chennai city. Over 5,300 people had been rescued by 16 November and dozens of relief camps established. The Indian Coast Guard and the three other branches of the Indian Armed Forces conducted rescue operations across Tamil Nadu, with the Indian Army and Air Force rescuing people in Kancheepuram district. 40 medical camps and 121 special camps for cattle stock had been constructed and 70 relief camps had distributed 58,000 food packets. As Chennai reels under the worst-ever floods to hit the Tamil Nadu capital, help is pouring in from all corners. From mosques to shopping malls, colleges to movie theatres and even big companies are opening their doors and hearts to residents of the deluged city.

In addition to trending hashtags, various online tools, lists, groups and services are being used to offer support during this ongoing crisis. It was reported that 55,000 people across Tamil Nadu had been screened for water- and vector-borne diseases in medical camps, while a further 402 mobile medical units were operating.

Many cine actors and actress rendered their helping hand by giving their fund, supplying food packets, providing shelter etc.. The Prime Minister Of India Narendra Modi visited Chennai during flood and immediately he allocated huge amount for recovery of Tamil Nadu. During this disaster, each and every citizen of Chennai united and came out of this terrific flood. Despite all the funds, we had received help from other countries and because of the unity of people, Chennai was relieved from the petrified flood.



## DUBAI – UNVEILED

- Saranya.S (II Year)

When Skyscraper is the name, Dubai is the fame. The crowning jewel of the Middle Eastern oasis used to be a small fishing port where trade flourished and profits related to sea were prosperous.

The massive injection of oil revenues bought wealth and fame to Dubai. According to a prophecy, the oil wells in Dubai would go dry by 2050 and so the city would be vulnerable to a severe economic crisis. To overcome this, the King of Dubai, Sheik Mohammad Bin Rashid Al Maktoum, started concentrating in other factors that would contribute towards the country's economy and Sheik Rashid knew that enhancing tourism and real estate was the only way to accomplish the task. This proved to be a boon to both architectural and civil engineering world because it paved way for the construction of the world's costliest hotel built in an artificial island, the world's tallest skyscraper from the top of which the earth's curvature will be visible. This also led to the advent of Dynamic Architecture. The existence of these buildings is a miracle in itself because they stand against the winds, gravity, and other natural forces.

## DYNAMIC TOWER:



The DYNAMIC TOWER is inspired from Suite Vollard in Brazil and it led to the advent of dynamic architecture. It is a 420-metre high, 80-storey moving skyscraper, designed by architect David Fisher. Each floor is designed to rotate independently resulting in a changing shape of the tower. Each floor in the Dynamic Tower is designed to rotate a maximum of 6 metres per minute, or one full rotation in 180 minutes. The entire tower is proposed to be powered from turbines and solar panels. The turbines would be located between each of the rotating floors and the solar panels are expected to cover the roof and the top of each

floor. The rotation of the floor will not perturb the residents inside because it is akin to the Earth's rotation about its axis. The construction of the dynamic tower is still under progress and it is expected to reach completion by 2020.

## BURJ KHALIFA – World's Tallest Building:

Burj Khalifa is an architectural marvel that is 2,722 feet high and can obviously be seen from any point in Dubai. Burj Khalifa looks like a stalagmite, which means that it resembles vertical minerals growing from cave floors. Stalagmites usually have a shape of a cone and so does Burj Khalifa.

The superstructure is supported by a large, highly dense and low permeable reinforced concrete mat which is in turn supported by bored reinforced concrete piles. Cathodic protection system was used under the mat to minimize any detrimental effects from corrosive chemicals in the ground water. The exterior cladding is comprised of reflective glazing with aluminum and stainless steel panels and it is designed to withstand Dubai's extreme summer heat. The spiraling Y shaped plan was used to design the core of khalifa because it would reduce the wind forces on the tower. The crowning touch of Burj Khalifa is its telescopic spire that was constructed from inside the building and was jacked to its full height using a hydraulic pump.







*Burj Khalifa inside view*

The most impressive aspect about Burj Khalifa is that it had been planned to be a so called “city within the city” because inside the tower you can find parks, alleys, districts, fountains etc. There are three entrances to the tower, because it is so huge that one or two would not be enough and a big artificial lake graces the foot of the massive skyscraper. The interiors were projected by famous designers. The interior of the Armani hotel, located on the floors from first to 39th, was designed by Giorgio Armani himself.

## BURJ AL ARAB:

Burj Al Arab is located in the heart of the city at about 280m in the sea from the Palm Jumeriah Coast. The design of the hotel reflects the seafaring heritage of Dubai, resembling the spinnaker sail of a J class yacht. The sail was a considerable technical challenge, featuring a double-skinned, Teflon-coated woven glass fibre screen across its ribbed belly. It is the first time such technology has been used vertically in such form and extent in any building worldwide. It is dazzling white by day and transforms to display a spectrum of colour at night, vibrant and alive against the skyline.

The structure of this masterpiece of architecture is made up of steel profiles and ensures its stability both for its triangular shape in plan and for the triangulation of their facades. The foundation for this hotel was built on sea and it took about three years to build the substructure. The world's largest atrium is aligned to the building's southern exposure and is separated from the outside by a glass fibre screen attached to the building through a network of steel cables which makes it extremely resistant to seismic waves. The screen reduces solar heat gain through the elimination of windows while still allowing for diffused light to enter the atrium space.

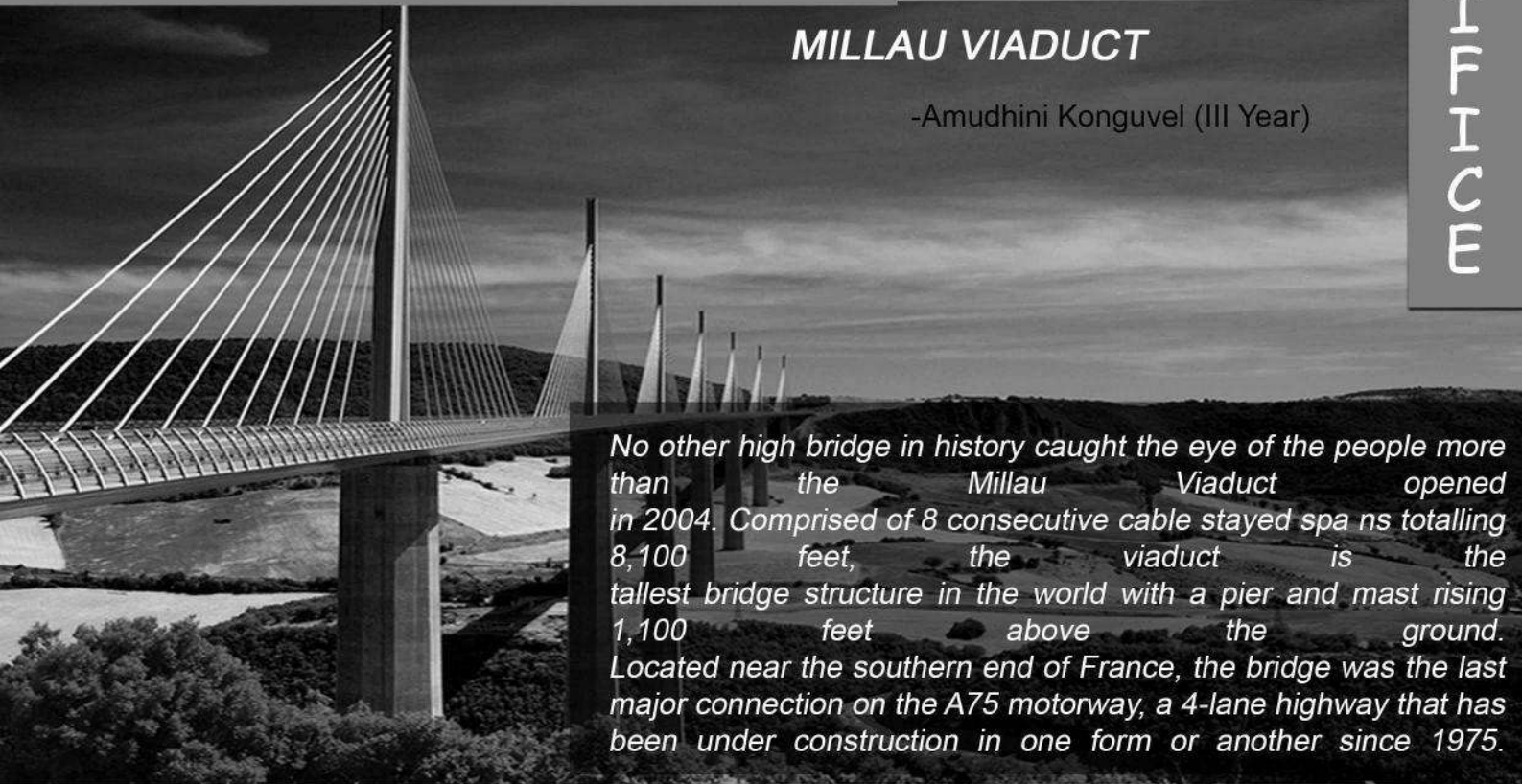


The screen is designed to flex with the wind loads of the building's coastal location and is coated with Teflon, a non-stick coating often used in kitchenware which prevents dust and dirt from adhering to the screen in the desert environment where sand dunes is common. It is 60 storey building and consists of 202 luxury double floor suites. The Burj Al Arab is equipped with a helipad which seems suspended in the air at floor level 28. This helipad occasionally turns into a tennis court when Roger Federer and Andre Agassi meet ! As Dubai continued to build up around the Burj Al Arab, it lost its title of world's tallest hotel to nearby towers but it still serves a reminder of the transition era.



## MILLAU VIADUCT

-Amudhini Konguvel (III Year)



*No other high bridge in history caught the eye of the people more than the Millau Viaduct opened in 2004. Comprised of 8 consecutive cable stayed spans totalling 8,100 feet, the viaduct is the tallest bridge structure in the world with a pier and mast rising 1,100 feet above the ground. Located near the southern end of France, the bridge was the last major connection on the A75 motorway, a 4-lane highway that has been under construction in one form or another since 1975.*

Construction began in October of 2001 and took a little over 3 years - exceptional for such a large, complicated undertaking. The bulk of the construction was undertaken by Eiffage, one of France's largest building contractors. The 3 year construction period had many unique challenges, the most significant being the unusual launching of the roadway. Instead of cantilevering the road deck outward in small sections from each of the 7 tall pylons, the deck was constructed on flat land on the north and south sides of the bridge in two large sections. Hydraulic jacks on the tops of the piers were then synchronized to move the entire deck out over the valley in small increments of about 2 feet. Both sides eventually met over the Tarn river. To make this method work, massive temporary intermediate piers were built to prevent bending of the thin deck since the cable stays and spars above the roadway would not be erected until the entire deck was in its final position. The only exception to this was for the two river spans where the spars and several of the stays were erected on land and went along for the ride across the piers before finally meeting 890 feet above the Tarn River.

Other technical advancements that are less obvious to the eye include an array of movement and motion sensors. Data collected from these devices will help engineers pinpoint potential trouble spots and unwanted wear and tear that could shorten the lifespan of the many bridge components.

While most of the visual impact of the viaduct comes from the 7 cable stayed "sails" that seem to float across the valley, much of the structure's greatness comes from the more subtle details that were incorporated into the design. The tall, slender piers have an unusual elegance from a narrow opening that gradually splits the column into two before closing up again within the mast above the road deck. The roadway has a slight curve that adds a third dimension of shape to the structure and offsets the boredom of repetition. The designers even made the best of an unfortunate requirement to install a tall wind barrier along the edges of the roadway with a stylish aerodynamic shape that still allows for a fantastic view of the valley beyond. As a nearly perfect blend of art, architecture and engineering, the Millau Viaduct will continue to inspire not only the public but future engineers who are continually challenged by the demand to create beauty and grace within the confines of functionality and cost.



**THE SPEEDY RECOVERY**

-Sanjaya Deve (III Year)



*Photo of a giant sinkhole (L) measuring around 30 metres (98 feet) wide and 15 metres deep, which appeared in a five-lane street in the middle of the Japanese city of Fukuoka on November 8, 2016 and of the same section of road (R) after repairs were made on Nov.15*

**"Japan fixes massive sinkhole on busy road in Fukuoka just a few days after it appeared"**

A busy stretch of road in the Japanese city of Fukuoka has been reopened just days after the sudden emergence of a giant sinkhole which threatened to topple nearby buildings.

The massive hole – which was roughly half the size of an Olympic swimming pool – opened up during construction work on the city's underground network.

In typical Japanese fashion, an earnest apology was issued immediately for the disruption, and a group of men put to work around the clock to clear up the mess. Just two days later, there is barely any sign that the sinkhole ever existed, construction workers having filled it in with generous amounts of cement before painting over the tarmac.



The weeklong rush to reopen the busy stretch of road included repairs to a sewage pipe and replacing traffic lights and utility poles that were swallowed when the sinkhole opened up shortly after 5am local time on 8 November.

The incident caused power cuts and disrupted phone signals, and gas and water supplies, but there were no reports of injuries.

The Fukuoka workers, who filled the hole with 6,200 cubic metres of sand and cement, drew praise on social media

Soichiro Takashima, the mayor of Fukuoka, even claimed the street was now 30 times stronger than before and said a panel of experts was being called in to establish what went wrong in the first place.

"We're very sorry for causing great trouble," he added.

Local media reports said the 30m by 27m sinkhole, which was 15 metres deep, was caused by construction work on an extension to an underground line.



*Work went on through the night to repair the huge sinkhole that formed in front of JR Hakata*



## THE MOULIVAKKAM TALE

- Rashmi Nagendran (IV Year)



*The most heard of collapse of the Moulivakkam multi-storeyed building, two years back, has engulfed the people's minds with fear and discontent about the activities of the construction industries. The flat investors have lost trust in investing on such apartments and some are still finding it difficult in obtaining their money back.*

*The Prime Trust Heights was a residential project developed by Prime Sristi Housing Pvt Ltd. It was proposed to have two towers - THE FAITH and THE BELIEF. Both were eleven storied apartments, the tallest towers in that locality. On June 28, 2014 something most unexpected happened which lead to a lot other negative consequences. After a heavy thunderstorm that evening, one of the under construction twin towers (THE FAITH), collapsed into pieces within few minutes. Several workers were trapped amidst this destruction. The Tamil Nadu Fire and Rescue force along with National Disaster Response Force NDRF from Arakkonam base managed the rescue operations. It was found that almost 61 people were killed and several injured. This incident caused a lot of grief and agitation among the family members of the workers and also other people.*

*After several investigations and cases filed, the reasons for the collapse of the building were stated to be poor design of the building and uncertainty if suitable soil tests were taken. The weak soil could have been a main reason for the collapse of the building as it could not withstand the entire dead load of the building. The columns designed were also found to be faulty and that many columns in the basement were removed to make room for parking of vehicles, which further aggravated the instability of the structure. Deviation from the safe building design and not adhering to proper soil testing were the main reasons for the building to reduce into pieces with just experiencing a one hour's rain. These reasons were strengthened by re conducting the soil tests and design tests.*





*Implosion technique using controlled blasting of explosives was deployed and all precautionary measures were taken to ensure that no danger was caused to the people and adjoining constructions. Columns in the 11-storeyed structure were filled with explosive substances and brought down using implosion technique, employing controlled blasting of explosives. Timer devices were used and the multiple blast was carried out sequentially by using a remote. Columns were drilled and explosive substance was stuffed. Before the demolition was carried out, the structure was weakened by removing some portions like walls.*

*The building Belief, was demolished at 6.52pm. The Kancheepuram district administration and the Chennai city police had taken several safety measures before the building was razed down. Arrangements were made at a*

*marriage hall to provide shelter for people who live in a 100-metre radius of the structure during the demolition. The district collector had declared holidays for schools. The police had blocked traffic on the Porur-Kundrathur road.*

*Even one such construction mishap definitely brings in a ray of scepticism among people and in turn lowers the chances of any future accomplishments to be made in the building sector. Incidents such as these should be taken up as lessons by others working directly and indirectly for the construction field and should be made sure that they do not happen again in the future. Abiding by design standards, adopting proper safety measures, performing suitable tests in the construction area before starting with the project, thorough investigation of previous conditions and analysing future situations, putting quality and safety first always are some ways by which we can avoid such careless man made accidents.*





*This incident had brought in a lot of disbelief in people regarding the construction firms and their methods of construction adopted. The rules and standards imposed by the Chennai Metropolitan Development Authority (CMDA) and Chennai Corporation should be made sure that they are abided by every firm and inclusion of more stricter rules were imposed by them after this incident.*

*Two years after this incident, the Supreme Court ordered demolition of THE BELIEF tower in May this year, after a three-member committee appointed by the apex court pointed to several shortcomings that would have affected the structural stability of the building.*

*Following this, the Kancheepuram district administration decided to pull down the standing structure. There existed months of legal battle between the construction firm and the Tamil Nadu government with the latter emphasising on demolishing the standing structure. Later, a petition was filed in the Supreme Court seeking directions for razing down the 11-storey structure. The apex court ordered to demolish the building on May 12, 2016*

*The Kancheepuram district collector wrote to the Chennai Metropolitan Development Authority (CMDA) to execute the demolition process. In turn, the planning body appointed Tirupur-based Maglink Infra Projects (P) Ltd to pull down the unsafe structure at a cost of around Rs 50 lakh.*



## STOLEN NATION

About 250 years ago, African slaves and indentured Indians began arriving on Chagos Islands, a group of atolls in the middle of the Indian Ocean. Nominally ruled from Mauritius, the nearest major settlement and then a British territory, the islanders led a simple life, farming the land and fishing.

Things changed dramatically during the Cold War when the US started looking for a location for a military base in the Indian Ocean. They settled on Diego Garcia, one of the biggest of the Chagos Islands, and cut a fair deal with Britain to lease it. Britain granted the US a 50-year lease at a rent of just \$1 per year in return for a \$14-million discount on nuclear technology.

There were just two obstacles to this superpower plan.

**FIRST OBSTACLE:** Chagos Islands were technically part of Mauritius, which was about to be granted independence but it did not prove to be a problem because Britain unilaterally annexed the Chagos Islands, declaring it a separate entity over which it maintained full control.

**SECOND OBSTACLE:** What about the people already on the islands? The US was clear that it didn't want any nosy people hanging around. Again, it wasn't a problem because Britain worked with the American contractors and got rid of the locals.

This was achieved through a programme of forced deportation, which began in the late 1960s by refusing re-entry to islanders who left on holiday or for medical treatment and all tickets out were one-way. The US officials wanted an acceleration in the process and so the British agents with the help of Navy Seabees, quickly rounded up the islanders' pet dogs, gassed and burned them in sealed cargo sheds. The remaining Chagossians were overcrowded on cargo ships and were moved out. During the deportations, which took place in stages until May 1973, most Chagossians slept in the ship's hold atop .Prized horses stayed on deck. By the end of the five-day trip, vomit, urine and excrement were everywhere. At least one woman had a miscarriage. Arriving in Mauritius and the Seychelles, Chagossians were literally left on the docks. They were homeless, jobless, and had little money and they received no resettlement assistance and they had become **refugees**. In 1975, the Washington Post broke the story in the Western press and found them living in '**abject poverty**' and that most remain deeply impoverished even to this day.



**Fast-forward a few decades. It's 2016, and the US lease on Diego Garcia is set to expire this year. Can the Chagossians can go home now?**

They have been lobbying for years for both adequate compensation and the right to return home. They have received neither despite several courts ruling in their favour. Most notably, in 2000, a British High Court ruled that the mass deportation was illegal, and that the Chagossians should be allowed home. This ruling was subsequently overturned by “royal prerogative”, effectively a decree endorsed by Queen Elizabeth II which allows the government to overrule court authority. A second important ruling was delivered by a United Nations tribunal in 2015, which stated that Britain continued to sideline Mauritius’s sovereignty over the islands.

Despite all this, the Chagossians remain in limbo. The US has made it clear that it wants to renew its lease because Diego Garcia is of vital strategic importance and is currently used as a staging post for airstrikes against the Islamic State. In 2010, Britain declared the Chagos Islands to be a “Marine Protected Area” to protect its delicate ecosystem and made sure that the US gets its way. But diplomatic cables released by Wikileaks prove that it was just a ploy with a US official noting stating that the former inhabitants would find it difficult to pursue their claim for resettlement on the islands if

the entire Chagos archipelago were a marine- reserve. The spokesperson from Britain’s Foreign and Commonwealth Office rejected Mauritius’s claim on the islands and said that Britain has been clear that they wanted to see the US presence.

The islanders are just as clear on what they want. But even as the US lease expires, their demands remain far from realisation. Despite the compelling legal and moral case for the Chagos Islands to be returned to Mauritius, Britain is too unlikely to give up its last colony in Africa any time soon.

The mass deportation of the Chagossians was an act of cruelty sanctioned under the name of political gain and the destination of deportation is nothing but annihilation. The plight of Chagossians indeed prove the theory that we humans are indeed inhumane because “the moment we stop fighting for each other, that’s the moment we lose our humanity.”

-Rakesh.S (II Year)



## COUNTRIES WE DIDN'T KNOW THAT EVEN EXISTED

### Republic of Lakotah

Most people wouldn't believe it if you said that there is a country the size of Syria in the middle of the US. But the inhabitants of Lakotah would argue that there is. Stretching over 1600 km Lakotah is the homeland of the Lakotah Sioux an ancient tribe who lived there long before the European Colonial settlers. In 1868 the American government signed the Treaty of Laramie giving Lakotah Sioux the rights to the land. However in 1870 the government apparently forgot the promise when they allowed thousands of miners to swarm the land with the promise of gold. Today the Lakotahs still consider themselves an independent state and are fighting for international recognition.

### Transnistria

Transnistria has its own president, parliament, currency and army. It even won a war of independence in 1992. Yet some people still argue that it is still a part of Moldova. In 1990 Moldova broke away from the USSR. This was a decision that Transnistria a thin strip of land on the border of Moldova and Ukraine didn't agree with. Transnistria with its population more than 500000, still felt a strong allegiance to Russia. They wished to declare themselves a socialist republic and remain part of USSR and so they fought a war to achieve this. But by the time a ceasefire was reached and Transnistria was able to make steps towards its goal. The soviet had crumbled. This threw Transnistria into disarray and the official status as a country remains unsolved

### Barotseland

Located between Namibia, Zimbabwe, Botswana, Zambia and Angola Barotseland is a home to united group of diverse tribes. Historically the region used to be an independent nation, but it was incorporated into Zambia in 1964. Its current claim for independence comes from the idea that it was incorporated into Zambia under false pretences as the 1964 treaty between the 2 peoples had promised autonomy to Barotseland that it did not receive but instead Barotseland was treated like any other province. After the years of rising tensions the Barotseland National council retaliated by declaring its independence from Zambia in March 2012. If it were to become internationally recognized this would make Barotseland the world youngest nation state.



## Sahrawi Arab Democratic Republic

Located in western Sahara in Africa the Sahrawi Arab Democratic Republic also known as the Saharan Arab Democratic Republic declared independence in 1976. Almost the third of the countries in the UN recognize the state but the rest still consider it part of Morocco. For almost a century the region had been a Spanish colony until the Spain withdrew in 1976 and things just got little complicated. Morocco, Mauritania and the indigenous inhabitants of western Sahara all lay claim to the territory leading to a bitter conflict. In 1979 Mauritania abandoned its claim but Morocco remains stubborn. It has repeatedly postponed referenda on the topic and the UN efforts to resolve the conflict have proved inconclusive.

## Abkhazia

You would think that having a distinct ethnic population historically defined boundaries a separate military a government a national bank and its own passports would be enough for a region to gain a country status but this isn't the case of Abkhazia. At the beginning of 11th century Abkhazia was a very much its own country only to then be subsumed into Georgia and then centuries later the USSR. When the USSR collapsed in 1991 things got a bit confusing Abkhazia declared a return to their medieval borders winning a war of independence against Georgia in 1993. Surprisingly despite the victory all but 4 members of the UN still refuse to recognize Abkhazia as anything other than a province of Georgia.

## South Ossetia

In 2006 the people of South Ossetia Georgia held a referendum that demonstrated its people's desire to become an independent nation. The small but proud population of 50000 people has their own language and is ethnically closer to Russia's Ossetians than their fellow Georgians. Since then South Ossetia has been effectively independent with their own government and president Leonid Tibilov. Sadly the referendum result and subsequent south Ossetian declaration of independence went unrecognized by the international community with the exception of Russia. Two years later Georgia sent tanks into the country to stop the growing unrest with force only serving to aggravate, the situation further and increase the tensions between the Georgian and the South Ossetian governments.

## Nagorno Karabakh Republic

Nagorno Karabakh is a yet another region whose country status has been utterly complicated by the messy dissolution of the Soviet Union. Following the 1991 collapse of USSR Nagorno Karabakh became the central focus of a war between Azerbaijan the country that completely surrounds it and the region's ethnic Armenian majority. A truce was signed in 1994 putting temporary control of the region known to its inhabitants as Artsakh into the hands of ethnic Armenians. Now despite Nagorno Karabakh having its own government military and even a legal constitution no other country in the world recognizes its legitimacy. This is because negotiations have failed to produce a permanent peace agreement than the UN could recognize.



## Chinland

Chinland whose territories originally included parts of Myanmar, Bangladesh and India is a home to around to 1.5 million people. They consist of 6 major ethnic groups who speak a total of 20 languages. When the British empire began to decline in 1940s Chinland was unofficially swallowed up into what was called then Burma. In March 1988 the Chin National front was established in reaction to the fact that in its current state. The Chin people did not have any exclusive rights despite having their own leaders and National Day. Chin nationalists believe that thanks to their rich history distinct culture and independent political system they are a country in their own right but the UN continues to consider them as a part of former Burma Myanmar.

## The Sovereign Military Order Of Malta

Unlike many of the other countries in this list the Sovereign Military Order Of Malta has a notable recognition from other countries around the world. It has strong political relations with 105 countries and diplomatic relations with another six. It has even permanent observer status at the United Nations. Yet, the utterly bizarre thing is the country has absolutely no physical territory nor does it claim any. Basically what happened is that Malta used to be occupied and owned by an order of Catholic knights. When Napoleon invaded Malta in 1798 this order was forced to relocate to Italy where catholic nations still continued to recognize them as a legitimate nation. And this has continued to this day despite the Order now only having control of two buildings in Rome.

## Balochistan

A vast province that makes about 44% of Pakistan Balochistan is a region that had been clouded with turmoil for well over half a century. Baloch nationalists argue that the province is actually an independent nation even celebrating august 11th 1947 as their independence day. They assert on this day towards the end of the british rule in Pakistan. The British gave Balochistan autonomy only for Pakistan to overturn the decision illegally annexing the region less than a year later. Since then the Pakistani government has used military force to quell independence uprisings in the 1950s, 60s and 70s. This country is suffering because of terrorists even today.

By Mukul Anand .B (II Year)