

Philosophy by Prof. Baidurya. Bhattacharyya.

Day 6

Prof.S.K.Bhattacharyya started the session with Design of Steel Structures followed by Design of RC structures

The workshop ended with the Feedback sessions through A-View in which participants appreciated the efforts made by the IITK team in organising the workshop as they found it extremely useful as well as gave suggestions to add topics on steel design, Seismic design and also conduct a separate course on prefabricated workshop.

The workshop came to a close with the Validictory function presided over by Prof. Baidurya. Bhattacharyya, Prof. S. K. Bhattacharyya, Prof. Sushanta Chakraborty and the Workshop Organiser Prof. Rajejan Datta

Achiever's Day

Achiever's day was conducted on March 30th 2016, to fulfill the idea of honoring the eligible students of even semester (2015-2016) on various streams like academics, sports, extracurricular, co-curricular, special interests etc. The program was started at 3.00pm at C.V Raman Hall wherein students were filled with enthusiasm to receive their awards. Chief guest for the event was the Academic Director Dr.C.V Kowshik who honored the achievers by giving away shields and medals. The event started by honoring the entire teaching and non teaching faculty.

The event was organized by Mr.Samuel, Mr.Jeson John Williams and Ms.P.Priyadarshni under the perpetual support of Head of the Department Dr.R.Malathy. The event was an overall success bringing into spotlight all the achievers of the even

semester with kind support of HOD and staff members of department of Civil Engineering.

Semester Toppers

Rank	Student Name	SGPA	Section
VI Semester (2013-2017)			
I	Sowmiya S	9.07	C
	Saranya P	9.07	C
II	Kavipriya S	9.04	B
III	Priyadarshini R	8.93	B
IV Semester (2014-2018)			
I	Lakshmi Priya C	9.56	B
II	Susmitha T	9.44	C
III	Kavipriya R (06.06.1996)	9.33	B

Industrial Visit Report II Year / IV Semester

The Department of Civil Engineering, Sona College of Technology organized an industrial visit to The India Cements Limited (Sankari works) on 23rd and 24th of February 2016 for B.E Civil Engineering students. Visit was organized with the prior permission and guidance of honourable Principal of Sona College of Technology, Dr. V. Jayaprakash, Dr. R. Malathy, Head of the Departments and Dr. S. Suresh Industrial link staff incharge. Students were accompanied by five faculty members Prof. S. Karthika, Prof. K. Thulasiraman, Prof. S. Prabhakaran, Prof. S. Kalaiselvi and Prof. S. Saranya. This industrial visit gave a wonderful opportunity to the student to learn the real insight of the working procedure of an esteemed organization. Students learned the manufacturing process of cement, properties and testing of cement by relating to the theory what they learned.



Congratulations

Dr.A.MURUGESAN, Associate Professor, Department of Civil Engineering for the successful completion of PhD in the academic year 2015-2016.



Thesis Title: Experimental And Numerical Investigation On Behavior Of Strengthened Two Bay-two Storey Reinforced Concrete Frame Under Cyclic Loading

Construction Companies

Company Name	Address	Field	Turnover (in Cr.)	Projects
GMR Infrastructure Limited	GMR Group, 25/1 skip house, Museum Road, Bangalore-560025 T:-918040534000	Infrastructure Construction	Rs.649.71	Rajiv Gandhi International Airport (Hyderabad) Modernisation of Indra Gandhi International Airport (Delhi)
Arihant Superstructures Limited	Arihant Superstructures Ltd., 302, Persepolis building sector 17, Plot No.74, Vashi, Navi Mumbai-400703. T:-912241153333	Housing	Rs.202.88	ARIHANT ANSHULA (Navi Mumbai) ARIHANT ANCHAL (Jodhpur) ARIHANT AALISHAN (Khargar)
Industrial Energy Limited	C/O The Tata Power Company Ltd, Corporate Center A Block, 34, Sant Tukaram Road, Camac Bunder Mumbai Mh 400009	Electricity Generation	Rs.527.21	Gas based Thermal Power Project, Katinganagar, (Adjacent to steel plant of Tata Steel Limited), Odisha State, India
Afccons Infrastructure Limited	AFCCONS House, 16, Shah Industrial Estate, Veera Desai Road, Azadnagar, Andheri (West), Mumbai 400053, India Tel: +91-22-6719 1000	Marine and Industrial Construction	Rs.531.69	Dry docks at Kochi and Vishakapatnam harbor LNG Petronet project at Dahej, Gujarat
Arvind Infrastructure Limited	24, Government Servant Society, Behind Citibank, C.G. Road, Ahmedabad - 380009	Commercial Complexes	Rs.205.27	Arvind Sporca, Bangalore Arvind Expansia, Bangalore Uplands, Ahmedabad
Caim India Limited	Caim India Limited DLF Atria Building, Jacaranda Marg - N Block, DLF City Phase II, Gurgaon - 122 002, Haryana, India Tel: +91 124 4593000, +91 124 4141360	Crude Oil and Natural Gas	Rs.1874.86	GAS & OIL FIELDS Ravva oil and gas field, Andhra Pradesh Mangala, Bhagyam and Aishwariya fields, Rajasthan

SONA COLLEGE OF TECHNOLOGY
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SALEM - 5



DEPARTMENT OF
CIVIL ENGINEERING

Indian Concrete Institute
ICI STUDENT CHAPTER
Eighth Issue

HOD'S MESSAGE

I am happy that SONACREA is releasing 8th issue. I appreciate Prof.M.Arivoli and her team for their continuous effort in bringing out this newsletter and this time exclusively with inputs on construction companies. It gives me immense pleasure in seeing the articles by faculty and students on latest trends and the department of civil engineering seems to be pro-active in organizing many programs.

I wish the newsletter should carry many more useful information and faculty and students should make use of these opportunities to express their views and to update their knowledge.



Dr. R. MALATHY
HoD / Civil
Convenor/ICI Student Chapter

ICI STUDENTS CHAPTER COORDINATOR MESSAGE



M. ARIVOLI
AP/ CIVIL
ICI Students Chapter Coordinator

It's my pleasure to release the 8th issue of the news letter "SONACREA". This issue carries out the vibrant faculty and student articles and reviews the events organized in the Civil Engineering Department from December 2015 to April 2016. Workshop on "Pre Employment Training" and "PRECON" were the notable events organized under ICI Chapter.

This issue is special by the way of carrying news about placement training, continuing education program of the department and a list of construction companies in India for the student exposure.

For the upcoming semester, many events will be conducted for the students to exhibit their talents. Students should make use of these events and enrich their profile.

ICI STUDENTS CHAPTER PRESIDENT MESSAGE

I feel privileged to be a part of ICI students chapter and to add my note on the events conducted for the 2nd year and 3rd year students of civil engineering department on behalf of ICI students chapter.

"Success comes to those who work hard and stays with those who don't rest on the laurels of the past"

Each issue of this newsletter is a proud milestone of our events that marks our growth, unleashes our imaginations and measures our professionalism. A committed team and enthusiastic students of the department have made this academic year 2015-2016 full of professional events. I hope that the list of events and success doubles in the next academic year.

I must thank Dr.R.Malathy, our honourable HOD and Mrs. M. Arivoli, co-ordinator of the chapter for guiding the members and helping in the outcome of this newsletter. I thank all the faculties for encouraging the students and supporting the events. Finally I thank the organizers and participants of the events for making it a grand success.

I request my friends and juniors to utilize this as an opportunity to encompass their knowledge and skills. I am sure that through collaborative effort we can achieve more through this chapter and could mould ourselves into professionals of tomorrow.



V.PONNMANI
Final yr / Civil
ICI Students Chapter President

Palm Tree Fibre As Reinforcement In Composite Constructions

INTRODUCTION

Natural fibres were obtained in nature from plants (roots, stems, leaves, fruits, etc). Efforts



Prof.N.Savitha

were taken from past few decades to use natural fibres as reinforcements in polymer matrix during composite preparation. These fibres offer the potential to act as reinforcement for low to medium strength applications such as automotive, marine, electrical, industrial, etc. Some of the natural fibres commonly used as reinforcements were henequen, sisal, coconut fibre, jute, bamboo, palm, wood, basalt, banana, etc. It is necessary to characterise plant fiber based on its cellular structure in order to use as reinforcements. The chemical structure of natural fibre or plant fibre comprises of cellulose, hemicellulose, lignin, pectin and extraneous materials. Each cell of fibre comprises of crystalline cellulose regions called microfibrils interconnected by hemicellulose and lignin fragments. Also natural fibres after treating with alkali undergo chemical modification and holds better strength there by replacing glass fibres for reinforcement in polymer matrix. Investigations on the mechanical properties of composite materials reinforced with several natural fibres were studied. Palm trees (Borassus flabellifer) available plenty in the southern parts of India has fibres from root to tip.



PROPERTIES OF PALM TREE FIBRES

Chemical properties

Palm fibres show the presence of high cellulose content as shown in Table. Cellulose content is responsible for long fibre chain and it ranges from 28% to 53% for palm fibres.

Fibres	Chemical Properties			
	Cellulose %	Hemi Cellulose %	Lignin %	Wax %
Palm leaf stalk	40-52	42-43	-	-
Palm leaf sheath	28	25	45	-
Palm petiole	30	14	28	-
Palm fruit	53	12	21	08

The hemi-cellulose content of palm fibres was very low than other natural fibres. Hemi-cellulose causes disintegration of microfibrils which decrease the fibre strength and ranges from 12% to 43% for palm fibres.

Physical Properties

The Physical properties of palm fibres are shown in Table. In general palm fibre holds appreciable fibre density and tensile strength.

Fibres	Physical Properties			
	Density g/cm ³	Elongation %	Tensile strength MPa	Young's Modulus GPa
Palm leaf stalk	1-1.2	2-4.50	97-196	2.50-5.40
Palm leaf sheath	1.20-1.30	2.84	220	4.8
Palm petiole	0.7-1.55	25	248	3.24
Palm fruit	1.09	28	423	6-8

REINFORCEMENT IN POLYMER MATRIX

The high rich cellulose content and lower lignin content in palm fibres ensure better mechanical strength. The tensile values of palm fibres were significantly high than any other natural fibres and hence it can be used for reinforcement in polymer matrix. Among all the developed composite samples the palm fruit fibre reinforced polyester composite holds appreciable tensile strength.

Passive Cooling In Buildings

There is a massive increase in the use of air conditioners at every home and workplace these days that apparently fuels the existing energy



Jeson John Williams W
AP/Civil

crisis that shakes the world. As per the World watch Institute, buildings consume about 40% of the world's energy production and produce 33% of all annual carbon dioxide emissions. If people feel comfortable temperatures at homes and their work place they will definitely forego the Air Conditioner usage, which in turn leads to massive energy savings. Passive cooling systems are the use of non-mechanical methods to maintain a comfortable indoor temperature which can reduce the peak cooling load in buildings. Some existing methods of passive cooling that are used widely to reduce the ambient indoor temperature are, shading by textured surfaces, solar shading, mutual shading, overhangs, louvers, as well as orient the building that has the smaller façade facing the sun. Shading of roof can be achieved by plants, shrubs or canvas.

Study shows the transpiration effects by small plants, creepers, and shadow cover from deciduous plants can lower temperatures up to 5°C. Covering of the entire surface area with the closely packed inverted earthen pots gives an effect of insulation to reduce heat gain and heat loss. Broken china, mosaic or ceramic tiles can also be used as top most layer in roof for reflection of incident radiation. We can come about this substitution by adopting passive cooling techniques that are affordable to adopt, when we build a building or retrofit these ideas into an existing building. It is the peak time that we have to join hands and rise up to the occasion to create a

sustainable future and a safer world for the forthcoming generation. We will actually have a satisfied happy heart, when we know that we are contributing towards a greener future, which also is a great blessing in disguise.

Beijing National Olympics Stadium

ABOUT STADIUM

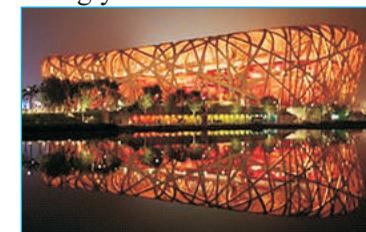
The stadium has a gross volume of three million cubic metres and is considered to be the world's largest enclosed space. It is also the world's largest steel structure with 26km of unwrapped steel used. The 91,000-seat stadium was designed to incorporate elements of Chinese art and culture. The National Stadium's main structure is an enormous saddle-shaped elliptic steel structure weighing 42,000t. The stadium extends 333m from north to south and 294m from east to west, with a height of 69.2m. The stadium design included demountable seats of 11,000

The stadium has two independent structures, a red concrete seating bowl and the outer steel frame around it at a 50ft distance. The circular shape of the stadium represents heaven, but has been described as a bird's nest, with its pattern inspired by Chinese-style crazed pottery. A series of cantilevered trusses has been designed to support the roof, shading the seats. Focus was also given to designing the stadium in such a way that it should be able to withstand earthquakes without much damage as the stadium is located in one of the world's most seismic zones.

The football field of the stadium with an area of 8,000m² provided enough space for the underground pipes of the geothermal heat pump (GHP) system, through which ground-

source energy is collected. In winter, the system absorbs the heat from the soil and helps heating the stadium, while in summer the coldness from the soil is stored which cools the stadium.

Computational fluid dynamics (CDF) simulation based on the Games-time situation has been used to calculate the temperature and airflow speed at each angle of the structure and optimise all ventilation facilities accordingly.



Stadium at Night

Site Layout

The Stadium is the centrepiece of the Olympic Green, on an irregular quadrangle of approximately 20.4ha. As the Aarp Journal stated, the terrain is relatively flat, with ground elevations ranging from 42m to 47m, highest at the south-west corner and lowest at the north-east corner. The position was chosen so that there would be a gradual rise in level from the city roads in the north-east, forming a gentle slope up to the stadium plinth. The plinth connects to the main concourse, level 1 of the stadium.

BUILDING LOADS

Dead Loads

Total Structure weight (without spectators) = 45,000 tons

Weight of steel = 42,000 tons

The following calculations were estimated based on some extended research and educated interpretations:

$$\text{seats} = 91,000 \times 8 \text{ lb} = 728 \text{ t}$$

Internal systems and partitions = 5% weight of internal structure = 150 tons

Weight of Concrete = 45,000t – 42,000t – 728t – 150t = 2,122 tons

To resist the dead load of the structure, the stadium was placed on a plinth. The slab was very thick.

The stadium can seat up to 91,000 spectators. With the service personnel and competitors the total occupancy can be reached 110,000 people. For the purposes of a live load estimate, an average weight of a person will be used as 200 pounds. The Stadium is located in the Beijing, China. Beijing lies roughly on the same latitude as Philadelphia, Denver and San Francisco. The Live loads due to the snow and wind will be similar to those in Philadelphia.

Live Loads

People = 110,000 x 200 lb = 11,000 tons

Snow (20 lb/sf) = 20 lb/sf * 62,500 sf (~roof area) = 625 tons

Wind Load = 90 mph ~ 25 lb/sf = 25 lb/sf * (1,093 ft (longest length) * 226 ft (height)) = 25 lb/sf * 27,018 sf = 3,090 tons

Total Loads

Dead Load = 45,000 tons

Live Load (Vertical) = 11,625 tons

Live Load (Lateral) = 3,090 tons

Total Vertical Load = 56,625 tons / 62,500 sf = 0.906 tons/sf of load on the foundation

Load Resistance

The Beijing National Stadium is designed to resist both typical building loads and earthquake loads.

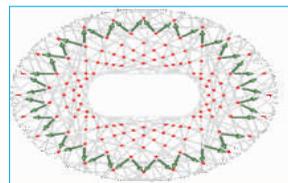
Horizontal Loads

The structure must resist a total of 56,625 tons of vertical load. The Steel structure itself must resist its own load of 42,000 tons and 11,625 tons of live load, totaling in 53,625 tons. The Plinth type of the foundation is

essential to carry such a load, which is fairly evenly distributed.

Each member of the steel “Nest” is designed carefully to carry its own weight of 42,000 tons loads. The overall shape appears to be random, but in reality it follows strict geometric rules.

The loads at each intersection are split between the members and transferred downward as indicated below.

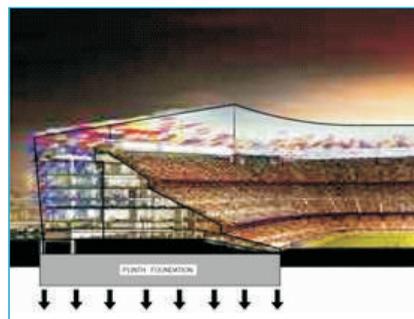


The red points indicate the transfer connections where load impact is felt most significantly

The below image identifies the primary and secondary members. The secondary members had to be welded on two sides of primary members. The steel envelope is constructed of 22.5 miles of steel and it took about 700 welders to complete the task.

STEEL FRAME CONNECTION DETAILS

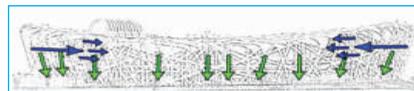
The core portion of the building carries the dead load of the concrete structure as well as the live load of people totalling to 13,122 tons. The load is transferred directly to the plinth foundation as distributed load as shown below.



Lateral Loads

The massive steel structure resists lateral loads in a similar manner as the horizontal ones. In addition, instead of

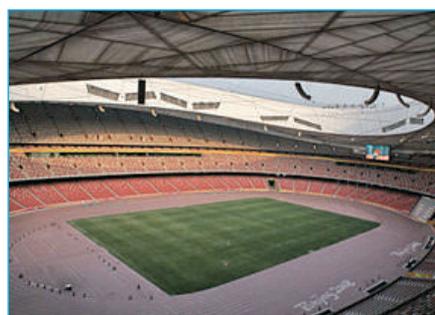
the loads hitting the structure and following it downwards and upwards it is broken down through the lattice of steel while being weakened and providing natural ventilation in the building.



Wind forces offering natural ventilation

Earthquake Loads

The Beijing National Stadium was designed with earthquake loads in mind, because Beijing is prone to seismic events. The outer steel structure is completely separate from the inner stadium seating area and is placed 50 feet apart. This placement allows the two structures move independently in case of an earthquake. Steel has a rather high modulus of elasticity as compared to the concrete, therefore the entire outer structure could be put together as a unit and withstand earthquakes. The core of the stadium was constructed out of the pre-cast reinforced concrete. Because concrete has significantly lower modulus of elasticity, it was decided into eight individual sections. This division allows each portion of structure to move independently of the other in case of seismic motion causing minimal amount of damage. Beijing Bird's Nest is designed to withstand earthquakes rated at 8.0 on Richter scale.



Gotthard Base Tunnel – A New Engineering Feat

Measuring 57.1 km flat route connecting Erstfeld - Bodio and 2.3 km deep at places, the base tunnel passes through the mighty Alps in Swiss which once was regarded as the trade barrier of the country. This base tunnel is not only the longest in the world but also the most expensive tunneling project costing €11bn till date. At 57km, the Gotthard base tunnel is 3km longer than the world's current record-holder, the Seikan rail tunnel and 7km longer than the Chunnel. Gotthard base tunnel was opened this June and will commence regular freight services this December.



V. Ponnmani
Final year



GOTTHARD BASE TUNNEL

Once fully functional, the tunnel will not just slice 45 minutes off the journey time between Zurich and Lugano, but also form a central building block of the so-called Rhine-Alp corridor that stretches from the sea ports of Rotterdam and Antwerp (once Dutch sea port) via Germany's industrial heartland down to the port of Genoa in Italy.

HISTORY

"A triumph of art and science, a monument to work and diligence! The barrier which divided nations has fallen, the [Swiss Alps] have been breached. Countries have moved closer to each other, the world market is open!" said the then Swiss president Simeon Bavier (1882) after the opening of Gotthard road tunnel.

Plans for a better rail tunnel have been around since the 1940s, but it was not until 1992 that Swiss voters backed their government's plan to build a new high-speed rail link through the Alps. Two years later the project got added impetus, when Swiss voters also backed a proposal from environmental groups to move all freight travelling through Switzerland from road to rail so as to reduce CO2 emissions and noise pollution. Thus with 65% citizen supporters, the ambitious work commenced even after the disbelief of geologists were expressed due to uncertainty of the rocks beneath.

CONSTRUCTION

Once the tunneling began the engineers came across 75 different types of rocks varying in stiffness from soft as butter to super hard as granite. A massive 10m (30ft) diameter tunnel-boring machine was built which could, on a good day, dig out 40m of tunnel a day - a world record says BBC. A total of 28 million tonnes of rocks were excavated in 17 years-365 days a year, 24 hours a day, more than 2,000 people have worked on the tunnel. The gravity was another obstacle which tried to close the tunnel once dug. So the tunnel was inserted with reinforced steel rings, designed for this problem by engineering minds to prevent collapsing on itself.

FEATURES

The Gotthard Base Tunnel consists of two 57-kilometres-long single-track tubes. Including all cross-passages, access tunnels and shafts, the total length of the tunnel system is over 152 km. It links the north portal at Erstfeld with the south portal at Bodio. The completed tunnel travels up to 2.3 km below the surface of the mountains above and through rock that reaches various temperatures of 46C – 10C.

Two multifunction stations, at Faiedo and Sedrun, divide both tubes into three approximately equally long sections. The multifunction stations each contain emergency-stop stations and two track crossovers. About 260 freight trains and 65 passenger trains will pass through the tunnel each day in a journey taking as little as 17 minutes at up to maximum 250 kmph.

The ultimate goal of the project is a high-speed rail link, with the Gotthard at its heart, connecting Rotterdam to Genoa. After the commissioning of Gotthard, the next big Ceneri project is waiting for the Swiss. Although the Gotthard Base Tunnel forms the heart of the NRLA, it is only together with the Ceneri Base Tunnel that it creates a continuous flat route. With this, during the time of Jingoism between nations, this project will thrive as a reminder of Switzerland's ability to trounce barriers when it manages to pull together

Pir Panjal Tunnel

The Pir Panjal Tunnel is a long under construction railway tunnel at the Pir Panjal Range of Himalayas in the state of Jammu and



B.S. Dheeba
Final year

Kashmir. The 11.00 km long Banihal railway tunnel with working speed of up to 775km/h (47mph), will be India's longest railway tunnel and Asia's 2nd longest railway tunnel. The great tunnel is located on the highest mountain pass on the eastern Pir Panjal range in middle of Himalayas. Indian Railways is closer to finish the work on India's longest transportation railway tunnel. The longest tunnel of India successfully passed its train trial run through Pir Panjal tunnel. The Main contractor is IRCON Ltd.

CONSTRUCTION DETAILS

The tunnel is almost straight, extending from north to south. It is **8.4m wide and 7.3m high**.

A 3m wide road runs along the track for maintenance and emergency services. The height of the railway tunnel is kept 450m lower than that of the road tunnel so the effect of snow is minimal. There is provision for ventilation, fire fighting and safety monitoring.

The construction of the tunnel was started in November 2005. It was built at a cost of Rs10bn (\$201.8m). Construction was undertaken by Hindustan Construction Company under an INR3.9bn contract awarded in 2005. The tunnel was opened in June 2013.

The new Austrian tunnelling method (NATM) has been used for the construction of the tunnel due to the varying geological strata of the mountain range - eight geological strata were observed. This is the first large scale project in India where the method has been implemented.

Soil equivalent of one mountain was excavated for the tunnel, using a tunnel excavator, road header and drill and blast methods. It was the first time that a road header was used for excavation in India. About one million cubic meters of excavation was involved in the project. The maximum overburden was 1,100m.



PIR PANJAL TUNNEL

A 780m long access tunnel and a 50m deep shaft were constructed for the construction of the tunnel. These will be used as maintenance access and emergency escapes. Waterproofing

was completed for the whole tunnel by February 2011. Day-lighting was achieved in October 2011.

PROJECT HIGHLIGHTS

- Amongst the longest transportation tunnel in India (11.215 km).
- Provision of 3-m-wide concrete road along side railway track inside the tunnel throughout the length for maintenance and emergency relief purpose.
- The tunnel passes about 440 m below the existing Jawahar Road Tunnel.
- The alignment of the tunnel crosses the NH-1A at three locations.
- First large-scale use of NATM in India
- Highest overburden: 1,100 m
- Total excavation quantity: 11 lakh cum
- Execution of rock bolting: 315,000 m

Technical Training Programme

Technical training programme had been conducted for final and third year civil students by civil faculty to provide basic knowledge in technical subject and practical site conditions. The technical programme provides three categories of training such as placement, higher studies and government exams. In the technical training the faculties having practical and technical knowledge trains the students in their respective field of engineering and helps the students to understand the difficulties in the site compared to the technical part. The training is done in three phases such as

- Phase 1 - Basic knowledge of core subject
- Phase 2 - Analytical and design oriented training with site conditions

- Phase 3 - Site application training

In the three phases the students are trained from the basic of core subject to the application of knowledge to the site problems.

Phase 1 training provides understanding the importance of certain subjects which is high important to the site requirement. It also gives him a clear indication of choosing the required field of working for his/her career.

Phase 2 and phase 3 provides application knowledge to survive in the civil field and also to know the current field situation for profession civil engineers. The order of training provides the students to update their knowledge on their subjects from second year to final year and the usage of training helps them to compare the technical knowledge to practical site knowledge. It also provides them to make use of interviews in the civil companies, public service commission exams, TNPSC exams. The training not only helps for job requirement but also gives sufficient knowledge to the students to be a entrepreneur.

Time Institute - Higher Education Guest Lecture

Trainee from Time institute, Salem had given a half day guest lecturer and interaction class for final years students in Edison hall. In the lecture, the senior trainee from the TIME had given a beautiful session and interaction about the need of higher studies, Gate, bank exams, TOEFL, GMAT, GRE etc. The session starts with an introduction of need for GATE and maximum benefit about the GATE exams in state and central government areas. Students studying GATE exams in respective field need better knowledge and attitude towards the exam and he also

pointed out that the stipend provided for GATE exam passed students will be greater than Rs 8000 in the coming years. Students interested in going outside the country for pursuing higher education should clear of TOFEL exams. The students willing to undergo training in time also can have online test. Finally he said that students looking for a higher salary need to have good knowledge in the basic and attitude to work in the construction field with or without bond for a minimum of two years.

Guest Lecture on "Introduction to Precast Structures"

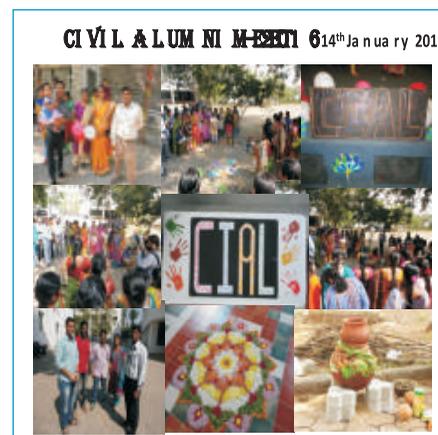
In the department of Civil engineering, a guest lecture was conducted on 09th October 2015 in the MBA block on the topic "Introduction to Precast structures" by Er. G. Murugapandiyan, from TRC worldwide Engineers Ltd., Mysore. He started with an introduction to the students on the area of design principles on reinforced and precast structures. He enlightened the difference in the concept of prestressing and precast members, In-plane and Out plane bending, base shear and diaphragm. His lecture highlighted the design and reinforcement details of a corbel, shear wall and composite slab. The feedback of the students was that the session was full of industrial knowledge and will be very much helpful for them.



Er.G.Murugapandiyan, from TRC worldwide Engineers Limited delivering the lecture

Report on CIAL 2016

The alumni association meeting was conducted on 14.01.16 and 39 students attended the meet. This association was renamed as **Civil Alumni Association (CIAL)**. At 10.30a.m, the meet was started by delivering the Welcome address. Dr.R.Malathy, HOD/CIVIL gave an inspiring address and welcomed the gathering. All the alumni interacted with our students sharing on their experiences related to present scenario in practical field. The alumni were honored under various categories like emerging, distinguished and elite for their achievements in their concerned field. Pongal was celebrated in our department on the same day in the presence of alumni which made them very happy. Many fun events and cultural programme was conducted by our students for the alumni. Feedback was collected from all alumni.



PRE EMPLOYMENT TECHNICAL PROGRAMME ON 3RD & 4TH FEB, 2016

Department of civil engineering organized a two days training on pre employment technical programme in association with Ultratech Cements Pvt Ltd, Salem at Sona College of Technology on 3rd and 4th Feb, 2016. The guest of honour was Er.Venkatraman and his team from Ultratech Cements Pvt Ltd. The inauguration ceremony

was made in the presence of Dr.Jayaprakash, Principal and Dr.R.Malathy, Professor and Dean (R&D).The principal energized the students by stating the importance of practical lectures. The first session was spared by Er.Venkatraman, Regional Head, Technical Services, Ultratech Cements Pvt Ltd, Chennai. He started the lecture on "**Green Homes in India**" and said that this concept was not a new one. He said that the buildings of ancient times have a green concept in it and how the green concepts relate to the nature. He also addressed about the GRIHA and Indian Green Building Council who will certify the building as green. He also touched upon the essential features that are required for green buildings. The second session was made by Er.Sanjay Kumar on "**Good Construction Practices**". He emphasized on the good construction materials, good and quality concrete, tips for good construction practices. The site visit was arranged on 4th Feb, 2016 to students and it was coordinated by Faculties of Sona. The places of visit were opposite to Chennai Silks, Ramakrishna School and near New Bus stand. The engineers at site explained the plan and design and execution of the building. The students learnt the laying of brickwork, concreting and plastering. The students were exposed to different materials of shuttering and formworks. The students could able to distinguish one way slab and two way slab, concealed beam and sunken slab. They were also exposed to different construction equipments. The students were taken to ultratech office where they saw different construction materials and its significance. After the field visit, the students were asked to prepare the presentation about the field visit. Nearly 9 batches presented. Out of it the best presentations were selected and rewarded. The training was concluded by honouring the guest

and his team member in the valedictory ceremony by Dr.R.Malathy.



Er.Venkatraman, Regional Head, Technical Services, Ultratech Cements Pvt Ltd, Dr.R.Malathy and Er.Sanjay Kumar rewarding the winners of student participants

Guest Lecture on Introduction of Remote Sensing and GIS Application of Geospatial Technology in Civil Engineering

An Awareness Program on Introduction of Remote Sensing and GIS application of Geospatial Technology in Civil Engineering was organized in the Department o Civil Engineering on 17.02.16. Ms.Rajmitha and Ms.Sujitha, Sakura Geo Information Software Research Pvt Ltd., Chennai gave an overview of GIS application in the field of Civil Engineering. The presentation covered the various tools present in GIS software that the students were already getting exposed to in the GIS course. The real-world application of GIS that was discussed included the use of buffering concepts for Chennai Metro Rail Project. The presenter also demonstrated how GIS could be used to estimate the volume of a heap material using GIS that could be applied in solid waste disposal sites. Overall, the lecture cum demonstration was highly beneficial to the audience as it connected the theoretical course with field applications.



Signing of MoU between Sona College of Technology, Salem & Tamilnadu Pollution Control Board (TNPCB)

Department of Civil Engineering, Sona college of Technology has signed a MoU with TNPCB on 19th Feb 2016 at Sona College of Technology. Sri. C. Valliappa, Chairman, Sona College of Technology and Er.A.Rengasamy, District Environmental Engineering, TNPCB, Salem, have signed the agreement.

TNPCB will be installing a Continuous Ambient Air Quality Monitoring Station (CAAQMS) worth 1.5 crores in Sona College campus for monitoring the ambient air quality of Salem City. The department of Civil Engineering jointly with Tamilnadu Pollution Control Board will be doing research by using the valid air quality data obtained from the sophisticated equipment.



Sri. C. Valliappa, Chairman, Sona College of Technology and Er. A. Rengasamy, District Environmental Engineering, TNPCB, Salem, signing the MoU

MoU was signed in the presence of **Sri. Thyagu Valliappa**, Vice Chairman, Sona College of Technology, Dr.V.Jayaprakash, Principal, Sona College of Technology, Dr C.V.Koushik Academic Director, Sona College of Technology, Dr.R.Malathy, Head of the Department, Civil Engineering, Dr. K.Jagadeesan Prof. U. Indira Priya Dharshini, Prof C.Ganapathy, Dr.L.Vijay Anand, & Prof.S.Karthika of Civil Engineering Department.



Thyagu Valliappa, Vice Chairman, Dr.V.Jayaprakash, Principal, Dr C.V.Koushik Academic Director, Dr.R.Malathy, Head of the Department, Civil Engineering, at the signing of MoU

Project Expo'16

On 01.03.2016 a District level Project Expo'16 was organized in Sona College of Technology by the Department of Civil Engineering. District Educational Officer Mr.K.Ramalingam inaugurated and governed the function as a chief guest also felicitated the participants and appreciated their models.

Dr.V.Jayaprakash, Principal, Sona College of Technology headed the function, delivered the Presidential address. Dr.R.Malathy, Head of the Department Civil Engineering, delivered the welcome address and felicitated the participants.

Students from Schools and Polytechnics in and around Salem participated in the event and displayed their working model (or) prototype which endeavours to disseminate their talents and innovative ideas in areas of science and technology. The students from Department of Civil Engineering, Sona College of Technology also displayed their working models in the fields of Engineering and Technology.

Working models like Power Generation from Footsteps, Green mall, Green Tech Water Purifier, Smart City 2030, Human Brain, save forest, Expansion of gases, hand operated vehicle etc., attracted most of the visitors.



Mr.K.Ramalingam, District Educational Officer, Dr.V.Jayaprakash, Principal, Sona College of Technology inaugurating the Project Expo



Dr.V.Jayaprakash, Principal, Sona College of Technology interacting with students about their displayed models



School students displaying their models



Students from various institutions along with their models

Signing of MoU Between Sona College of Technology, Salem & IMTI, PWD, Trichy

MoU was signed between Sona College Of Technology and Irrigation Management Training Institute ,PWD ,Trichy on 29th Jan 2016 at Sona College of Technology in the august presence of Dr.R.Malathy, HOD/Civil and Er.K.Manuraj ,Director IMTI ,Trichy. Through this MoU, seminars, workshops, inplant trainings and internships could be organized for the students of SCT. Er. K . Manuraj interacted with the students about the importance of irrigation department, ongoing projects, and job openings in the irrigation sector and clarified a few doubts arised by the students and also encouraged them to carry out projects based on irrigation. He mentioned about automation of canals, in which canal operations can be done through remote control automatically without any necessity of men on- site. The Director proudly declared that they are the number one in conducting workshops and training for both faculty and students on soft skills development in fun method. He also extended a hearty welcome for organizing industrial visits to know about the ongoing projects.

Moreover, Er.Sagaya Raj, Deputy Director for IMTI and Dr. A.Ranganathan, Research Head, IMTI, faculty and students of civil department were present in the session. Finally he concluded by expressing his pleasure to be present on the occasion and wished the students a wonderful future as civil engineers.



Dr.R.Malathy, HOD/Civil and Er.K.Manuraj, Director IMTI, Trichy, Er.Sagaya Raj, Deputy Director for IMTI and Dr. A.Ranganathan, Research Head, IMTI and aculty of Department of Civil Engineering at the signing of MoU

Workshop on Tall Buildings

In department of civil engineering, workshop on tall buildings was conducted for two days on 24th and 25th February in association with ARK Technosolutions and Association of Civil enginners, IIT Madras. The work shop was inaugurated by the Principal Dr.V.Jayaprakash and Dr.R.Malathy HoD/ On first day the design philosophy of tall buildings, loadings due to gravity, wind and earth quake ,materials and modeling of tall building using software are elaborately discussed by the resource person. On second day a model making contest was conducted and the winners selected for to represent in finale in IIT,Mumbai. The workshop was co-ordinated by Prof M.Arivoli and Prof.G.Aruna. Around 60 students from various institutions were participated and they were eager to attend such workshops for the upcoming days.



Interaction of students with resource person

National level workshop on Precast Concrete Construction – challenges and opportunities (PRECON'16)

Department of Civil Engineering of Sona College of Technology has conducted one day National level workshop on **Precast Concrete Construction –challenges and**

opportunities (PRECON'16) on 2nd March,2016 in association with Indian Concrete Institute (ICI) and UltraTech Cements Ltd. The programme was inaugurated by lightening kuthuvilakku by **Dr.V.Jayaprakash**, Principal, Sona College of Technology, **Er. K. Venkatraman**, Regional Head, Technical Services, Ultratech Cement ltd, Chennai, **Er.Sridhran rao**, Regional Manager, Elematic India Pvt ltd, **Er.L.H.Chandra Shekar**, Engineering Manager, Trimble solutions India Pvt ltd, Bangalore and **Dr.R.Malathy**. Professor and Dean(R&D), sona College of Technology. The welcome address was given by Head of the Department (Incharge) followed by principa's p r e s i d e n t i a l a d d r e s s . Er.K.Venkatraman welcomed the speakers and gave an introductory note on the workshop. The first session was given by **Er.L.H.Chandra Shekar on** benefits of Building Information Modeling (BIM) in precast structures. The next session was given by Er.P.Surya Prakash ,Sathyavani projects and consultants pvt ltd on Entrepreneurship opportunities in precast construction. He explored the opportunities for entrepreneurs in Precast Technology. He emphasized the students about Time, Quality Assurance and Cost . These are the three mantras for a successful entrepreneur in any field .He stated the advantages of Precast technology by the cost analysis of conventional and Precast methods. He shared the experiences about the projects that he has worked. While concluding his lecture, he said **Prime minister Narendra Modi's 2022 dream** will become possible only by adapting this technology. Er.Ravichandran, Teemage Precast In shared about the projects successfully completed by Teemage by a video presentation and Er.Gowtham gave a lecture on different types of connections in Precast

Construction. **Er.Sridhran rao** talked about the benefits of adapting precast technology for mass construction. The final video presentation was made by UltraTech about various products developed by them.



Dr.V.Jayaprakash, Principal, Sona College of Technology, and Dr.R.Malathy with speakers Er.L.H.Chandra Shekar and Er.P.Surya Prakash

Inauguration of ICI- Salem Centre

The Indian Concrete Institute – Salem Centre was inaugurated on 2nd March 2016 at Sona College of Technology which is the 35th centre of ICI. Er. Venkatraman Secretary, ICI - Chennai Centre welcomed the gathering. Er. R. Radhakrishnan Secretary General, ICI, gave a presentation about ICI. Dr. Manamohan R Kalgai, President, ICI installed the office bearers of the Salem Centre. Dr. R. Malathy, Er. N. Sanjaikumar, Er. M. Arivoli, Dr. P.M. Shanmugavadivu. Dr. D. Jagadeeswaran, Dr. R. Krishnasamy, Er. S. Prabakaran, Er. Jeson John Williams, Er. N. Savitha, Er. A. Meenachi, Er. M. Jagadeeswari and Er. K. Kumaraguruparan were inducted as office bearers of Salem Centre. Dr. R. Malathy Chairman, ICI- Salem Centre gave the acceptance speech. Er. N. Sanjaikumar, Secretary, ICI- Salem Centre proposed the road map of ICI – Salem Centre for the upcoming year. Dr. Manamohan R Kalgai delivered the keynote address on “Applications of Prestressed and Precast Concrete Technology in Building Sector”. The function was felicitated by Er. Pradeep GC- member, ICI, Dr. V. Jayaprakash, Principal, Sona College of Technology and Er. Suresh, Chairman, Pondicherry Centre. More than 250 members like academicians, practicing engineers, students were present on that occasion.



Dr.M.R.Kalgai, Er.Pradeep, Er.R.Radhakrishnan and Dr.V.Jayaprakash with office bearers of ICI-Salem centre

Guest lecture on Structural Integrated Design concepts of Buildings at a Glance

A guest lecture was arranged for M.E Structural Engineering students on 9th April 2016 entitled “Structural Integrated Design concepts of Buildings at a Glance”. Er.N.Dinesh, Structural Engineer (Design Platform - Structural Engineering Group) TRC Worldwide Engineering Company, Bangalore enlightened the students on Design Sequences / Pre-Requisites, How codes/tools play a big part in analysis & design, Design philosophy - RC / Steel / Prestress at a glance, Case Study - World's tallest temple - Analysis / Design Scope in focus and Structural Opportunities.



Students interacting with Er.N.Dinesh

A National Level Symposium “CARVE 2016”

CARVE 2016 is a national level student's technical symposium which was conducted on 23rd and 24th MARCH 2016. On the first day of symposium, two parallel national level workshops were conducted entitled on “Engineered concrete for sustainability” and “Industrial steel structures” by eminent resource persons. Er.Jagadeesan, The Ramco Cements Limited, Dr. V. Rajkumar,

Associate Professor/ Civil Engineering Government College of Engineering, Salem. Dr.R.Malathy HoD & Dean(R&D)/Civil, Sona College Of Technology, Salem, Dr. P. M. Shamugavadivu, HoD/Civil Engineering, Knowledge Institute of Technology, Salem, were acted as panel members for Engineered concrete for sustainability. Dr.L.S. Jayagopal Mithran Structures Private Limited, Coimbatore, Dr.D.Tensing, Director, School of Civil Engineering, Karunya University, Coimbatore., Dr.M.Anbarasu, Assistant Professor/Civil Engg. Government College of Engg., Salem. Dr. A. Murugesan Associate Professor / Civil Engg. Sona College of Technology, Salem were acted as panel members for Industrial steel structures.



Dr.R.Malathy HoD & Dean(R&D)/Civil, and other invited guests at the inauguration of CARVE16

On the second day of symposium “CARVE 2016”, 232 students were registered from various institutions. Many events like Paper Presentation, Poster Presentation, Multimedia Presentation, Cube Contest, CADD Contest, Treasure Hunt, Code Cracking, Short Film, Tamil Event and Technical Connection were conducted and appreciated the winners in valedictory functions.



Appreciating the Winners of various events at valedictory function

2nd National Conference on Innovations in Concrete and Construction (ICON 16)

One day 2nd National Conference on Innovations in Concrete and Construction is organized by Department of Civil Engineering, Sona College of Technology in association with Institution of Engineers(civil division), Indian Concrete Institute and Institute Society for Technical Education & CAFET INNOVA technical Society (CITS) on 30-03-2016 which was sponsored by Institute of Engineers and Ultratech cement ltd., held in Dr. A.P.J Abdul Kalam Conference hall.

This conference aimed to encourage the professionals with and engineering and technology to orient themselves in an innovative system. The conference also created a forum for the researchers, scientists, engineers and practitioners to share the knowledge in Concrete and Construction and bring them under one roof to explore new horizon of innovative technologies. Dr. N. Arunachalam, (Professor and Dean) of Bannari Amman Institute of Technology and Dr.R. Krishnasamy, (AD) PWD highways were the chief guest for the one day national conference. The chief guest Dr. N. Arunachalam was honored by Dr.V.karthikeyan, Principal, TPTC salem, (Chairman of IEI Salem Chapter). They released the conference souvenir and Dr. N. Arunachalam addressed the students and shared his knowledge on “Latest Advancements in Concrete technology”. He highlighted on recent research and significance of research in the areas like special concretes and its development in recent days during his energetic presentation.

This conference dealt with the key issues and achievements under the themes of Alternatives for sand and

cement in concrete, Theory and advanced technology of engineering structures, Smart construction materials, Special Concretes, Steel Concrete Composites, Environmental engineering, Structural health monitoring and Rehabilitation & construction management.

Over 50 papers were presented by researchers, academicians, Industrialists during the conference and are compiled in a CD & also in the form of hard Copy in the form of conference proceedings.

Vote of thanks for the inaugural function was proposed by Prof. ARULSELVAM, Secretary of IEI Salem Chapter. Dignitaries present during 2nd National Conference highly appreciated the efforts made by the organizing team. Participants appreciated the ambiance of the campus, institute building, Conference kit, quality of presentation, schedule and arrangement as well as seminar hall and facilities in the hall.



Dr. N. Arunachalam, (Professor and Dean) of Bannari Amman Institute of Technology and Dr.R. Krishnasamy, (AD) PWD highways at the inauguration



Faculty and student participants from various institution at inauguration of the conerence



Conference souvenir released by Dr. N. Arunachalam

Continuing Education Centre

To enhance the students knowledge in the field of Civil Engineering, the Department of Civil Engineering conducted various Civil Engineering related software courses under Continuing Education scheme for the benefit of the students. Through this software courses, students enhanced their knowledge in the field of Drafting, Analysis and design. Under this scheme, three software courses were conducted like SAP & E-Tabs, STAAD PRO & AutoCAD and Rs102000 was generated as revenue through these courses. Totally 8 faculty & 70 students were benefited.

We thank our management and head of the department for providing this opportunity and continuous support for the great success of this program.

One Week Workshop on- Introduction to Structural Engg.

1 week workshop was conducted at our remote centre (1157) under NMEICT organised by IIT Karagpur.

30 participants attended the workshop at this centre out of the total 32 registered participants from Sona College of Technology and Thiagarajar Polytechnic College.

All the following events were conducted through Amrita Audio Visual Interface through which the recourse personnel from IIT were establishing their communication.

Day 1

The Introductory remarks about the course outline for the workshop was shared by Prof. Rajan Datta and the formal inauguration of the workshop took place which was presided over by Prof. Baidurya.Bhattacharyya, Prof. S. K. Bhattacharyya, Prof.Sushanta Chakraborty and the Workshop Organiser Prof. Rajan Datta.

Rest of the sessions on the 1st day was on Structural Analysis lectured by Prof.Baidurya.Bhattacharyya

Discussions were made on assignment questions on the last session

Day 2

Prof. Baidurya.Bhattacharyya discussed on Structural Analysis in the 1st session which was followed by a session on Design Philosophy in RC Structures by the same resource personnel.

Afternoon sessions were on Structural Analysis by Prof. Sushanta Chakraborty which was followed by discussion assignment questions at the end of the session.

Day 3

Prof.S.K.Bhattacharyya handled the morning sessions on Structural Analysis and the afternoon sessions were on Design of RC Structure and compared some design codes of Europe, America and India by Prof. Sushanta Chakraborty

Day 4

Prof.S.K.Bhattacharyya gave the final lecture on Structural Analysis and Prof.Sushanta Chakraborty briefed on Design of RC Structures

The Afternoon session had Quiz programme conducted through A-View the included detailed questions on Structural Analysis, Strength of Materials, and Design of RC.

The final session of the day was handled by Prof.Sushanta Chakraborty on Design of RC.

Day 5

Prof.S.K.Bhattacharyya started the session with Design of Steel Structures followed by Design of RC structures.

Prof. Sushanta Chakraborty lectured on RC structures again and another session followed on Design