CIVIL
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INSPIRING ENGINEERS

DEPARTMENT OF
CIVIL ENGINEERING

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S.R.K.R ENGINEERING COLLEGE

· VISION ·

Sagi Rama Krishnam Raju Engineering College will be offering Engineering and Technology Programs of choice, where parents want to send their children, where students want to learn, where employers seek Quality Engineers and Technologists ..where Industry and Government find Technological Innovations

· MISSION ·

Eminence in Technical Education through the quality of programs, teaching and research with social relevance

DEPARTMENT OF CIVIL ENGINEERING

· VISION ·

To Lead Academics and Research in Civil Engineering Globally

· MISSION ·

To Improve high-quality education and make the students Ethical, World-Class Professionals

To improve Skills of both staff and students with oppurtunities to innovate and explore knowledge through research projects and consultancy

To inculcate the feeling of present needs in students and evoke in them a responsi to serve the society better

MESSAGE...

This provides an intersection of great challenge and great opportunity for the students to review their efforts and to analyze their achievements in research and development technology is evolving at a dizzying rate .So the objective of the department is to prepare students for a successful carrier in industry which is essential.

In the modern world of construction where we witness every day as a day of a new construction method, material and skill, it is very much important to forward the same to the students by means of latest teaching aids and by preparing an equal and proper learning platform.

I congratulate the team of students and the faculty for their tireless efforts that they have come to action in the form of the magazine.

Sri.S.Prasada Raju
President
S.R.K.R. ENGINEERING COLLEGE

MESSAGE...

I feel honored to be the Principal of Sagi Rama Krishnam Raju Engineering College, providing an opportunity to connect with students, faculties and regularly support staff also industry experts. Sagi Rama Krishnam Raju Engineering College will be offering Engineering and Technology Programs of choice, where parents want to send their children, where students want to learn, where employees seek Quality Engineers and Technologists, where Industry and Government find Technological Innovations. While there are many branches of engineering, the job opportunities in all sectors are not the same. However, the knowledge and skills acquired in all branches of engineering boil down to critical thinking, analysis, design, testing and taking calculated risks. I am confident that the college, with its rich legacy, will continue to shape the future of the young minds of our country and transform their potential into successful careers resulting in national development

DR.G.Pardha Saradhi Varma
Principal
S.R.K.R. ENGINEERING COLLEGE

MESSAGE...

It gives me profound pleasure and pride to explore a remarkable education world in the Department of Civil Engineering. It has been our Endeavour, right from the beginning, to make our department a preferred destination for students who want to get to the top of this field. We aspire to mould our students into globally competent and well chiseled Civil Engineers who can meet the challenges of technological advancement. All efforts are also being made to inculcate social values and professional ethics in our students to face the current as well as future global standards. A well-qualified and competent faculty with well equipped labs is committed to provide an excellent teaching methodology for nurturing the students into excellent engineers as well as good human beings. The students here are encouraged to engage extra-curricular and co-curricular activities which are essential for personality development, nurturing of team spirit and development of organizational skills.

Dr.M.Jagapathi Raju
Head of the Department
S.R.K.R. ENGINEERING COLLEGE

SIR ARTHUR COTTON

Arthur Cotton was born on 15 May 1803 at Comber mere, the tenth son of Henry Calvary Cotton, uncle of the noted Field Marshal Lord Comber mere, and one of eleven brothers. In 1818, aged 15, he became a cadet at the East India Company's military seminary at Add iscombe, Surrey. He passed out in December 1819 and was commissioned Second Lieutenant in the Madras Engineer Group. He started his career with the Ordnance Survey at Bangor, North Wales, in January 1820, where he was praised for his reports. In 1821 he was appointed for service in India, where he was initially attached to the Chief Engineer to Madras. He was later appointed as an Assistant Engineer to Superintending Engineer of the Tank Department. . He was promoted to the rank of Captain in 1828, and was put in charge of Investigation for the Cauvery Scheme. He started working to remove the soil settling in Kallanai Dam and with the model of the dam he built the Upper Dam in Cauvery in Mukkombu, near Tiruchirapalli. He constructed the Lower Anaicut Dam in Anaikarai. The success of these projects paved the way for further important projects on the Godavari and Krishna Rivers. He succeeded in completing the magnificent project on the Godavari river at Dowleswaram in 1852. His work in India was much appreciated and he was honoured with KCSI (Knight Commander of the Order of the Star of India) in 1877. He became a much-revered figure in the state of Andhra Pradesh for his contribution in irrigating the area of land also known as Konaseema. In recognition of Cotton's contributions, a new barrage constructed across the Godavari river, upstream of the anicut, was named after him, and dedicated to the nation by the Prime Minister of India, Indira Gandhi in 1982. He is revered in the Godavari District for making it the "rice bowl" of Andhra Pradesh. He is known as the "Delta Architect" of the Godavari District because of his pioneering work in irrigation engineering.

TRAFFIC CONGESTION

Traffic congestion is a condition on transport that is characterized by slower speeds, longer trip times and increased vehicular queuing. Traffic congestion on urban road network has become increasingly problematic since many years, when traffic demand is great enough that the interaction between vehicles slows the speed of the traffic stream, this results in some congestion.

Traffic congestion has a number of negative effects:

- Wasting time of motorists and passengers. As a non-productive activity for most people, congestion reduces regional economic health.
- Delays, which may result in late arrival for employment, meetings and education resulting loss in business, disciplinary action or other personal losses.
- Wasted fuel increasing air pollution and carbon dioxide emissions owing to increased idling, acceleration and braking.
- Emergencies: Blocked traffic may interfere with the passage of emergency vehicles travelling to their destinations where they are urgently needed.
- High chance of collisions due to tight spacing and constant stopping and going.

REDUCING TRAFFIC CONGESTION

Three techniques for reducing the impact of traffic congestion on public transport are:

1. Provide exclusive lanes for public transport:

   Exclusive public transport lanes mean the lane on which the bus or street car runs and is not open to private vehicle traffic. Exclusive lanes enable buses and trams to avoid congestion helping increase their speed, reliability and attractiveness.

2. Use regulations and traffic engineering to control traffic:

   Traffic congestion impacts on public transport. This means adding traffic restrictions that help public transport and removing traffic restrictions that hurt public transport.

   Examples of traffic regulations include:

   - Parking restrictions
   - Turn restrictions
   - Transit exemption from turning requirements
   - Loading restrictions

3. Use innovative ideas to reduce traffic impacts on public transport:

   a) Clever applications of exclusive guideway measures:

      Queue bypasses are short section of exclusive roadway located near an intersection that enable transit vehicles to bypass congestion at the intersection.

   b) Real time public transport lanes:

      Real time public transport lanes are lanes that use real time traffic control devices to clear street lanes for public transport vehicles exactly when the PT vehicles are not present the lanes are free for use by any traffic.

MILLAU VIADUCT

Out of many marvelous achievements in civil engineering and architecture, millau viaduct is a enormous achievement. It is located in the France and is the largest cable stayed bridge in Europe. At 2.4 km long, and 270 m above the river at its highest point, the Millau viaduct spans a 2 km valley in the Massif Central mountain range and forms the final link in the A75 highway from Paris to Barcelona. Despite its huge length, journey time over the structure is expected to be just one minute. The road has two lanes in each direction and approximate cost of project is €400 million.

Bridge design

Two major challenges were identified in building the structure: crossing the River Tarn, and spanning the huge gap from one plateau to the other. The solution proposed is unique, using seven pylons instead of the typical two or three. It is several metres taller than that other famous French landmark, the Eiffel Tower.

Famous British architect Norman Foster was in charge of the viaduct's appearance. It has been designed to look as delicate and transparent as possible. Each of its sections spans 342 m and its columns range in height from 75 m to 235 m over the river Tarn. It uses the minimum amount of material, which made it less costly to construct: the deck, the masts rising above the road deck and the multi-span cables are all in steel.

MILLAU VIADUCT

Bridge construction

Construction began in October 2001, and by November the following year, the highest pier had already reached 100 m in height. Launching the deck started in February 2003, and was completed by May 2004.

Unusually, the deck is constructed from new high-grade steel as opposed to concrete. This helped the deck to be pre-constructed in 2,000 pieces at Eiffage's Alsace factory and GPS-aligned, 60cm at a time.

The Millau Viaduct is supported by multi-span cables placed in the middle. To accommodate the expansion and contraction of the concrete deck, there is 1 m of empty space at its extremities and each column is split into two thinner, more flexible columns below the roadway, forming an A-frame above the deck level.

Construction work used approx. 127,000 m^3 of concrete, 19,000 t of steel-reinforced concrete and 5,000 t of pre-constraint steel (cables and shrouds). The project needed 205,000 t of concrete, of which 50,000 m^3 will be reinforced concrete. In total, the viaduct weighs 290,000 t.

Geological and geotechnical context

The Millau viaduct links two limestone plateaus separated by a deep valley eroded by the Tarn River. The sedimentary basins, which started to form during the middle of the Secondary Era, appear to be particularly well preserved.

The rock encountered on the site is exclusively sedimentary, composed partly of dolomitic limestone and partly of compact marls (Mennessier and Collomb, 1983).

MILLAU VIADUCT

There are three different types of foundation rocks along the viaduct. The first one, the Bajocian dolomitic limestone at the northern abutment (C0), is a very hard.

The compacted marls from pier P7 to pier P6 constitute the second rock type. The Hettangian limestone on the two sides of the Tarn River from pier P4 to the abutment (C0) constitutes the third rock type.

It can be concluded that the marls are less resistant than the limestone. It is the reason that the piles in marls are enlarged at their base and are longer than the piles in limestone

A 3m-wide emergency lane provides increased security. It will, in particular, prevent drivers from seeing the valley from the viaduct.

As the bridge will be exposed to winds of up to 151 km/hr, side screens are used to reduce the effects of the wind by 50%. The speed of the wind at the level of the road therefore reflects the speed of the wind found at ground level around Larzac and Sauveterre.

Conclusion:

Millau bridge is really a great civil engineering asset .On one hand it had served people of france and reduce traffic in great extend and on other hand it had generated a new thinking pattern in civil engineering world. People on top of bridge feel like they are in heaven being above the cloud above Tarn River. Thus clearly dictating that civil engineers are the one who can even pave pathways to heaven and who knows someday they may do it in real.

CIVIL ENGINEERING TECHNOLOGIES

1. Shear wall Technology:

In Structural Engineering. A shear wall is a vertical element of a science force resisting system that is designed to resist in plane lateral forces, typically wind and seismic loads. In many jurdictions, the international building code and international residential code govern the design of shear walls.

A shear wall resists loads parallel to the plane of the wall. Reinforced concrete buildings often have vertical plate like RC walls called shear walls which is in addition to slabs, beams and columns. These walls generally start at foundation level and are continuous through the building height. Their thickness can be as low as 150mm or as high as 400mm in high rise buildings.

Shear walls are usually provided along both length and width of buildings. Shear walls are vertically oriented wide beams that carry earthquake loads downwards to the foundation. Shear walls in buildings must be symmetrically located in plan to reduce ill effects of twist in buildings.

Why shear walls?

1. Normally Structures do not fail under vertical or the gravity loading that is the primary loading for which a structure is designed for.
2. Lateral loading is the major load that causes structural failure in most of the cases
3. The structural system chosen for its efficiency in resisting vertical loads is to be checked for the acting horizontal loads, which is mainly depends on the locality or terrain.

CIVIL ENGINEERING TECHNOLOGIES

What are shear walls?

- Shear walls are vertical Structural members used to resist lateral and horizontal forces that carries load downwards to the foundation.
- Lateral forces are caused due to wind force, earthquake and uneven settlement loads.
- Shear walls starts from the foundation level and are continuous throughout the building height.
- Structurally the best position for the shear walls in the centre of building which is rarely practical so, usually it is provided at lift shafts and stair walls.

Advantages:

- Very good earthquake performance, if properly designed.
- Easy to construct.
- Effective in reducing construction cost
- Minimizing earthquake damage to structural and Non structural elements.

Current Use of Shear walls:

- Popular choice in many earthquake prone countries like Chile, Canada, USA and New Zealand.
- In general used in medium and high rise buildings.

DEPARTMENTAL ACTIVITIES

Event: Latest advances in Civil Engineering - Workshop on "Analysis of Tall Buildings"
19th and 20th Dec 2016

A workshop is organized on "Analysis of Tall Buildings", with an objective to create awareness for 3rd and 4th year students on practical consideration while designing Tall Building.
Md. Khadar, Technical Incharge, Robokart, who is an expert in "Analysis of Tall Buildings" addressed topic.

1 Workshop

2 Quiz

CONCURSO(QUIZ). 4th August 2016

The event is conducted by the 4th years of the department in order to create a platform for the juniors to showcase their talent. The main aim of this event is to bring out the creativity of the student by creating a platform to develop their skills. The event is mainly about quiz and in this event the participants are initially divided into teams. Nearly 50 students were participated in the event. The participants are divided into 10 teams. Each team consists of 5 members and there are 5 rounds in this event. Each is round is of different zone.

The event is completed by the distribution of prizes by the faculty members. Later the participants share their experience with us. Later interaction is happened between seniors and juniors and new relations were developed among the students.

DEPARTMENTAL ACTIVITIES

Two day Workshop On
"Geospatial Technologies"
with special colloquium on
'Evaluation of Land and Water Management Systems of West Godavari District, Andhra Pradesh, India'
27th-28th, October, 2016

Dr. S.M. Ramasamy, Founder & D.S.T Geospatial Chair Professor, Centre for Remote Sensing, Bharathidasan University, Tiruchirappalli, Tamilnadu the Chief Guest, presented on salt water intrusion of Krishna, Godavari and Pennar deltaic areas. He also stressed the necessity of Interlinking of rivers.

Dr. P. Sanjeeva Rao, Advisor, SERB, D.S.T, New Delhi, Chief Guest, focused the need of protection of deltaic areas.

Dr. M.K. Durga Prasad, Former Vice Chancellor, Krishna University, Machilipatnam, Guest of honor presented a beautiful and holistic view of the Kolleru Lake and its present scenario. He stressed the need of conservation of Biodiversity and pristine flora and fauna of Kolleru Lake and to develop it into a potential tourism spot.

Dr. T. Ravi Sankar, Group Director, NRSC, Hyderabad has nicely presented the resource potential of the West Godavari District and stressed the need of presentation of data base with the help of satellite data.

Dr. P.A.R.K. Raju, Convener of the workshop stressed the necessity of protection of wet lands and Deltaic area. He focused the climatic changes and its impacts on Godavari Deltaic areas. He also presented the past, present and future scenarios of the Godavari Delta.

Dr. B. Venkateswara Rao, Professor, Centre for Water Resources, Institute of Science and Technology, JNTUH, Hyderabad explained the terrain features of Errakalava watershed.

Dr. M. Pandu Ranga Rao, Retd Professor, NIT, Warangal and Adviser, Telangana Government presented about Mission Kakatiya of Telangana State in a simple and lucid manner. He also urged the A.P Government to focus on water harvesting technologies for water security for irrigation and drinking.

Dr. K. Hanumantha Rao, Advisor, NRSC, Hyderabad explained about the problem of transformation of Green revolution to blue revolution.

DEPARTMENTAL ACTIVITIES

Dr. V.S. Sarma, Retd Chief Scientist, NGRI, Hyderabad presented on "Significance of Electrical Resistivity Imaging (ERI) for environmental studies and sea water intrusion impact in different regions.

The experts participated in this workshop expressed the following recommendations to protect the Godavari delta from the present and future threats in the form of sea level rise and salt water intrusion, soil erosion and resource pollution.

1. **To build an ecosystem 3D model and modelling of hydrological regime for West Godavari district using IRS satellite data.**
2. **SRKREC to submit research proposal under RESPOND programme of ISRO to build and ecosystem model on Godavari Delta**
3. **To study the environmental impact of the promotion of aquaculture in Deltaic and Flood plains using IRS satellite data with reference to the ban imposed on aquaculture by other Asian countries.**
4. **To propose optimal solution to reduce the environmental effect from Aquaculture in Godavari Delta and Kolleru Lake environs.**
5. **Project work for M.Tech students of SRKREC in the coming semester at NRSC**
6. **Finalization of RESPOND project proposal on Guntupalli caves as per the suggestions of experts.**

SUPERNOVA-2K17

INAUGURAL FUNCTION:

Inaugural function starts with the Jyothi prajwalana and followed by valuable speeches and messages of dignitaries. All the participants are encouraged to give their best of what they prepared to for participating in the events. (Dr G V R Srinivasarao, HOD civil Dept Andhra University, Guest of Honour)

- **EVENTS OF SUPERNOVA-2K17**

1. KONKRE KIB (CUBES)
2. MODELI EFICH(MODELS AND POSTER)
3. EKZAMINA(QUIZ)
4. PERICIA (G.D)
5. PLANCIA (BRIDGE IT)
6. GEODEZIYA (SURVEY)
7. TECKNA (AUTOCAD)
8. FILMAR (SHORT FILMS)
9. SPORTS AND MORE EXICTING EVENTS

SUPERNOVA-2K17

Supernova 2k17 is a National Technical Symposium Conducted Every Year at Srkr Engineering College by Civil Engineering Department. Supernova-2k17 was Conducted On Jan-7th and 8th of 2017.

As this is a national level technical symposium large number of students from various colleges came to participate in the technical events.

SUPERNOVA-2K17

VALIDICTORY FUNCTION:

\In valedictory function, the winners of the events are awarded with the prizes and certificates and all the partcipants are awarded with a certificate of participation.

CHIEF GUEST:

Chief guest(Satti Srinivasu) of the function gives some important speech and shares his experiences with the students and chief guest is felicitated by the dignitaries on the stage.

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