Civil ENGINEERING

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RVR&JC COLLEGE OF ENGINEERING

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ABOUT THE DEPARTMENT

The Department of Civil Engineering, established in 1985, offers both undergraduate and postgraduate programs, including an M.Tech. in Structural Engineering. Accredited with 'A' Grade by NBA multiple times, it has a strong faculty team of 4 Professors, 6 Associate Professors, and 24 Assistant Professors, all with advanced degrees and expertise in various specializations. The department is dedicated to providing high-quality education and hands-on experience, with faculty actively involved in national and international professional societies.

DEPARTMENT GOALS

- To develop the Civil engineering department a centre of excellence
- To undertake the need based research and consultancy
- To excel in class room interaction and to create an educational environment that prepares our students for a professional carrier in civil engineering
- To contribute for the socio-economic development of the region

VISION

- To develop the department into a centre of excellence in Civil Engineering education

MISSION

- To train the students in Civil Engineering possessing scientific and technological knowledge.
- To impart managerial and communication skills to the students.
- To inculcate ethical and environmental values in the students.

PROGRAMME EDUCATIONAL OUTCOMES(PEOs)

PEO1 *To provide basic scientific training to the students so as to solve Civil Engineering problems with scientific outlook.*

PEO2 *To provide training in basic engineering sciences so that students apply the concepts of basic engineering sciences to the solution of Civil Engineering problems.*

PEO3 *To train the students in the broad areas of Civil Engineering and interdisciplinary areas.*

PEO4 *To mould the students professionally competent with managerial/communication skills and possessing ethical values.*

PEO5 *To make the students aware of the impact of Civil Engineering activities on the environment and contribute towards sustainable development.*

PROGRAMME SPECIFIC OUTCOMES(PSOs)

PSO1 *Able to apply principles of Civil Engineering to solve problems of society and contribute towards sustainable development.*

PSO2 *Able to plan, design and execute various Zinfrastructure projects related to civil engineering.*

PROGRAMME OUTCOMES(POs)

PO1 *Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.*

PO2 *Problem analysis: Identify formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.*

PO3 *Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.*

PO4 *Conduct investigations of complex problems:Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.*

PO5 *Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including predication and modeling to complex engineering activities with an understanding of the limitations.*

PO6 *The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.*

PO7 *Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.*

PO8 *Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.*

PO9 *Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.*

PO10 *Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.*

PO11 *Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.*

PO12 *Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes.*

MESSAGE FROM HOD

Dr. A. Srinivasa Prasad,
HOD ,CE

It is with immense pleasure that I welcome you to this edition of the Civil Engineering Department's magazine. This publication is more than just a collection of articles, it is a testament to the dedication, innovation, and resilience that define our department. It highlights the spirit of progress that drives our students, faculty, and staff to push the boundaries of engineering knowledge and application.

As civil engineers, we are entrusted with the responsibility of shaping the infrastructure that supports modern society. In an era of rapid technological advancements and increasing environmental challenges, the need for sustainable and innovative solutions has never been greater. This magazine captures the essence of our collective efforts to educate, inspire, and contribute to building a better world.

Inside these pages, you'll find stories of academic achievements, groundbreaking research, community outreach, and a glimpse into the future of civil engineering. It is my hope that this publication will not only inform but also inspire you to continue striving for excellence, creativity, and service to society.

I would like to extend my heartfelt gratitude to all contributors and readers for making this magazine a success. Your unwavering support is what makes our department a vibrant and forward-thinking community.

Thank you for being a part of our journey.

Kailasa Temple: A Timeless Blueprint for Civil Engineering Mastery

----A. Chinni Krishna Chitanya, Kushwanth Trinadh Reddy

Nestled deep within the majestic hills of Ellora, Maharashtra, India, the Kailasa Temple stands as a testament to the ingenuity and craftsmanship of ancient Indian civilization. Carved from a single massive basalt rock, it remains one of the most awe-inspiring monuments of architectural excellence. Dedicated to Lord Shiva, this magnificent rock-cut temple not only holds religious significance but also stands as an epitome of ancient engineering. Its construction, spanning from 756 to 773 CE during the reign of King Krishna I of the Rashtrakuta dynasty, demonstrates how ancient builders leveraged advanced principles of structural integrity, load transfer, water management, and material science. As the largest monolithic temple in the world, the Kailasa Temple continues to inspire engineers, architects, and historians alike. Its design exemplifies innovation, resilience, and timelessness qualities that have allowed it to withstand centuries of wear, natural calamities, and even the destructive forces of invading empires. The temple is carved from the rock itself, comprising a series of pillars, beams, and arches that distribute the weight evenly, ensuring stability. The combination of cantilevers and corbels used in its construction adds further to its structural integrity, allowing the temple to resist external loads and stresses. The rock foundation provides a natural base, and the weight of the temple is carefully transferred through the use of redundant structural elements, ensuring that if one component fails, others can bear the load. The architecture follows a hierarchical system, where larger elements support smaller ones. This approach maximizes structural efficiency and stability. The temple's symmetrical design reduces torsional forces during seismic events, while its centralized mass minimizes eccentricity. The temple's vertical load transfer system, from the superstructure to the foundation, is complemented by horizontal load resistance through shear walls and pillars, allowing the structure to absorb and dissipate seismic forces. The foundation of the Kailasa Temple is the natural basalt rock itself, which provides a stable and enduring base for the structure. The strength of the basalt ensures the temple's longevity, allowing it to withstand the passage of time, earthquakes, and weathering.The foundation is designed to transfer the temple's weight directly into the rock, utilizing the natural properties of the material. Over the centuries, the temple has withstood numerous earthquakes, thanks to its symmetrical design and centralized mass minimizes eccentricity.

The temple's vertical load transfer system, from the superstructure to the foundation, is complemented by horizontal load resistance through shear walls and pillars, allowing the structure to absorb and dissipate seismic forces. In addition to its structural brilliance, the Kailasa Temple also features an advanced water management system that showcases the ancient builders' understanding of hydrology. The temple complex includes a network of drains, gutters, and channels designed to collect and conserve rainwater. These systems ensure that water is directed away from the temple, preventing erosion and damage to the structure. The use of terraces and retaining walls further helps in controlling water flow and managing erosion. The builders even carved gutters directly into the rock to guide water toward downspouts and drains, demonstrating their exceptional knowledge of water management. The Kailasa Temple's construction is a prime example of the ancient builders' expertise in material science. The use of basalt rock, with its high compressive strength and durability, ensured the temple's resilience against both weathering and external forces. The natural rock was chosen not only for its strength but also for its ability to support intricate carvings and sculptures that adorn nearly every inch of the temple. The excavation of the Kailasa Temple was an extraordinary feat of engineering and manual labor. The temple was constructed using a top-down excavation method, where the work began at the top of the rock and moved downwards. The builders had to remove over 200,000 tons of rock to carve out the temple. This was achieved through a combination of chiseling, hammering, and wedging, with the excavated rock removed using ropes, pulleys, and levers. The precision required for this method is astounding, as once the rock was cut, there was no opportunity for modification. The entire design had to be meticulously planned in advance, and the fact that the temple was completed in just 16 years with such intricate detail adds to the wonder of its construction. The Kailasa Temple is also known for its rich artistic and philosophical significance. The temple complex is adorned with intricate sculptures and carvings that showcase the skill and creativity of ancient Indian artists. Some of the most notable features include monolithic elephant sculptures and intricately designed victory pillars at the entrance, symbolizing strength and triumph.

A massive statue of Nandi, Lord Shiva's bull, adds to the temple's spiritual significance. Four lion sculptures stand in a circle on the roof of the Mahamantapa, symbolizing divine guardianship of the temple. Elephant sculptures carved at the base of the temple create the illusion that the entire structure is being supported by the backs of these beasts. These artistic elements not only enhance the temple's aesthetic appeal but also embody deeper philosophical and religious meanings tied to Lord Shiva and the nature of divine power. The Kailasa Temple's resilience is further highlighted by an intriguing tale from the Mughal era. In 1682, during the reign of Mughal Emperor Aurangzeb, a group of 1,000 laborers was sent to destroy the temple. Despite their relentless efforts for three years, they could only succeed in damaging a few statues. The rock was simply too strong to be destroyed with the tools available to the artisans, which included hammers, chisels, and picks. Eventually, the Mughal forces gave up, realizing that the temple could not be destroyed. This remarkable resilience further underscores the extraordinary engineering and craftsmanship of the Kailasa Temple. The Kailasa Temple in Ellora is not just a religious site but a monumental achievement in engineering, architecture, and art. It is a symbol of the sophistication of ancient Indian civilization, showcasing an understanding of structural integrity, seismic resistance, water management, and material science that continues to inspire modern architects and engineers. The temple's preservation, despite centuries of neglect, warfare, and natural calamities, speaks to the timeless quality of its design and the enduring brilliance of its creators. As we move toward a future where sustainability and resilience are paramount in modern construction, the Kailasa Temple offers valuable lessons for creating structures that are not only beautiful but also built to endure the test of time.

WATER DROP REASEARCH PUBLICATIONS MADE BY FACULTY

-Leading to River of Research in Civil Engineering

Meenakshi Sudarvizhi Seenipeyathevar, Balaji Shanmugam, Abiraami Ramakrishnan, Kesava Rao Battena, Vetturaya sudharsanan Ramasamy, Vadivel Murugesan published a paper on "A comprehensive study on advanced strategies to improve the performance, durability, and flexible behavior of cementitious materials" in international journal Matéria (Rio de Janeiro) SCI / SCIE, July 2024, 1517- 7076.

Dr. Dv Naga Raju, Mr.G Vamsi Krishna, Mrs. Madhavi Devi Lanka, R. Chandramohan, Dr Lakshmi Ramani Burra, Mr Balaji tata published a paper on "systematic survey on credit card fraud transaction detection techniques" in journal of theoretical and applied information technology, September 2024

Chandramohan Ramamurthy, Middela Naga Sai, Kiran Singh, Nadendla Siva Prasad, published a paper on NDVI land cover classification for Krishna district, Andhra Pradesh, India for the year 2020 by RS and GIS techniques" in International Research Journal of Modernization in Engineering Technology and Science , September 2024.

Sanijya, G., Tejaswini, published a paper on "Effluent treatment of wastewater in dairy processing industry" in Journal of Environmental Protection and Ecology, SCI / SCIE, October 2024 .

Lakshmi Kanth, Ch, P. Ravindra Kumar, Bypaneni Krishna Chaitanya, N. Venkata Sairam Kumar, Naga Sai Rama Krishna Thati, N. Satya Vijay Kumar, B. Ravi, Annamdasu Nagesawara Rao published a paper on "Prediction of Mechanical and Tensile Properties of Self-Compacting Concrete Incorporating Fly Ash and Waste Copper Slag by Artificial Neural Network-ANN", in Annales de Chimie - Science des Matériaux, October 2024 , 0151- 9107,1958- 593.

Internship done by B Tech Civil to enhance career prospects by involving

-Real-World insights and Network Oppurtunities

Internship

in

SkillDzire

A Real-Time Knowledge Platform That Helps Students Accelerate Their Career

Srikanth Muppalla
Founder | SkillDzire

-by

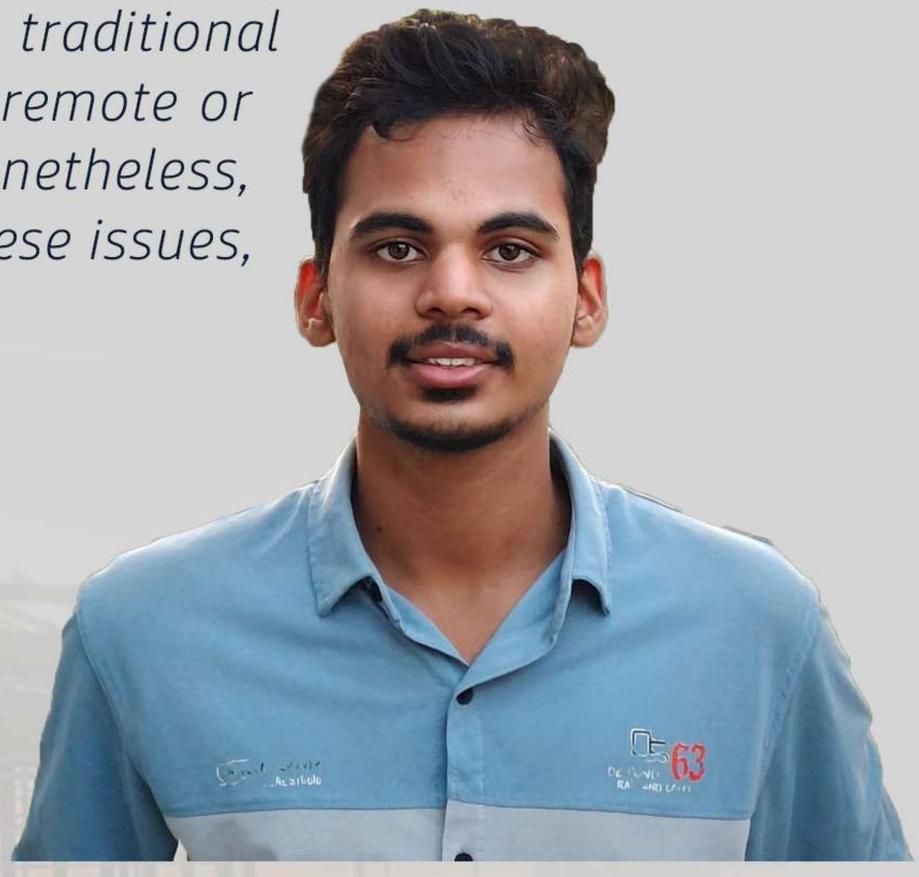
K.Urbasi (Y21CE049)
M.Sudharani (Y21CE059)
M.Lakshmi Sravanthi (Y21CE061)
T.Likitha Sai (Y21CE082)

-from

15-05-2024 - 15/07/2024

Revolutionizing Construction: The Role of Prefabricated Houses in Modern Civil Engineering

Prefabricated houses are reshaping the construction industry, especially from the viewpoint of civil engineers. These modern housing solutions combine affordability, efficiency, sustainability, and design adaptability, making them an increasingly popular choice in addressing contemporary housing needs. Constructed in controlled factory environments, these houses eliminate many inefficiencies associated with traditional construction methods while maintaining high standards of quality. One of the most significant advantages of prefabricated houses is their cost-effectiveness. Building components in a fvactory setting allows materials to be purchased in bulk, reducing overall expenses. Additionally, the assembly line production process requires fewer labor hours, cutting down on costs further. Unlike traditional site-built homes, where delays are common due to weather or other unforeseen factors, prefabricated homes can be produced on a fixed timeline, ensuring cost and time savings. For civil engineers, this streamlined approach translates into projects that are both economically viable and predictable, offering significant value to homeowners and developers. Prefabricated houses also offer remarkable speed of construction. Since components are manufactured off-site and only need assembly on location, the construction process is expedited, often completing in a fraction of the time required by conventional methods. This rapid assembly makes prefabricated homes ideal for emergency situations, such as disaster relief or addressing housing shortages in urban areas. Contrary to the perception that prefabricated houses are limited in design, modern advancements have enabled high levels of customization. Civil engineers can now design prefabricated homes to meet specific aesthetic and functional needs. These homes can accommodate various architectural styles and integrate cutting-edge features like smart home technologies and energy-efficient systems. Such versatility makes them a preferred choice for projects ranging from affordable housing to luxury residences. Prefabricated houses are also a sustainable solution to modern construction challenges. The controlled factory environment minimizes material waste, contributing to environmental conservation. Many prefabricated houses incorporate eco-friendly materials and energy-efficient designs, reducing their carbon footprint. For civil engineers focused on sustainability, these houses align with global environmental goals while providing clients with cost-effective, green living options. Despite their rapid construction and eco-friendly appeal, prefabricated houses do not compromise on durability. Advanced engineering techniques and stringent quality control measures ensure that these homes meet or exceed building codes and safety standards. Prefabricated components are designed to withstand diverse environmental conditions, offering structural integrity and long-term reliability. For civil engineers, this ensures that prefabricated houses are both a practical and resilient solution. However, there are challenges associated with prefabricated houses. The scope for significant design modifications is limited compared to traditional site-built homes. Transporting large prefabricated modules to remote or hard-to-access areas can also present logistical hurdles. Nonetheless, ongoing technological advancements are helping to mitigate these issues, making prefabricated homes an increasingly viable choice.



L.Sri Datta
Y22CE038

Guest Lecture Conducted

ఆంధ్రప్రభ

ఉక్కునిర్మాణాలపై పరిశోధనలు అవసరం

మాట్లాడుతున్న మాధవ్

గుంటూరు అర్బన్,నవంబర్ 8 (ఆంధ్రప్రభ)నిర్మాణ రంగంలో బలమైన దేశ భవిష్యత్తును నిర్మించడానికి ఉక్కు నిర్మాణాలపై పరిశోధనలు అవసరం అని హైదరాబాద్ ఐ ఐ టీ ప్రొఫెసర్.మహేంద్ర కుమార్ మాధవన్ పేర్కొన్నారు. శుక్రవారం స్థానిక చౌడవరంలోని ఆర్.వి.ఆర్ అండ్ జె.సి.ఇంజనీరింగ్ కళాశాలలో సివిల్ ఇంజనీరింగ్ డిపార్ట్మెంట్ ఆధ్వర్యంలో నీడ్ ఫర్ రీసెర్చ్ ఆన్ స్టీల్ స్ట్రక్చర్స్ అనే అంశం పై నిర్వహించిన సెమినార్ కు హైదరాబాద్ ఐ ఐ టీ ప్రొఫెసర్.మహేంద్ర క ుమార్ మాధవన్ ముఖ్య అతిధిగా హాజరయ్యారు.ఈ సందర్భంగా ఆయన నిర్మాణ రంగంలో వివిధ దేశాల్లో టెక్నాలజీ ఆధారంగా అవలంభిస్తున్న నిర్మాణ పద్ధతులను వివరిస్తూ, వరదలు,భూకంపాలు వంటి విపత్తి పరిణామాలు సంభవించినప్పుడు వాటి నుండి రోడ్లు,భవనాలు, వంతెనలు వంటి వివిధ నిర్మాణాలను రక్షించుకొనేందుకు చేపట్టవలసిన చర్యలను గూర్చి వివరించారు. నిత్యం పెరుగుతున్న జనాభాలో అధిక శాతం మంది ప్రజలు పట్టణ ప్రాంతాల్లోనే జీవనం సాగిస్తున్నారని అక్కడ వున్న భూ విస్తీర్ణతలో ప్రజల నివాస సౌకర్యాలకు అనుగుణంగా ఎత్తైన భావన నిర్మాణాలు జరుగుతున్నాయన్నారు.ఆ ప్రాంత వాతావరణ అనుకూలత ప్రతికూలతలను తట్టుకునే విధంగా తక్కువ సమయంలో టెక్నాలజీ ఆధారంగా సుస్థిరమైన నిర్మాణాలను చేపట్టడంలో సివిల్ ఇంజినీర్లు కీలక పాత్ర పోషించాలని,పర్యావరణ పరిరక్షణ దిశగా నిర్మాణ రంగంలో విద్యార్థులు నూతన ఆలోచనలు చేయాలని ఆయన పేర్కొన్నారు.అద్భుత నిర్మాణాల సృష్టి సివిల్ ఇంజినీర్ల మేధా శక్తే అని ఆర్.వి.ఆర్ అండ్ జె.సి. ఇంజనీరింగ్ కళాశాల అధ్యక్షులు డా.రాయపాటి శ్రీనివాస్,ఉపాధ్యక్షులు శ్రీ జాగర్లమూడి మురళీమోహన్,డా.జగదీష్ కె.మద్దినేని పేర్కొన్నారు.సివిల్ ఇంజనీర్ విద్యార్థులకు కేంద్ర,రాష్ట్ర ప్రభుత్వ శాఖలతో పాటు,విదేశాల్లో సైతం మంచి అవకాశాలు ఉన్నాయని కళాశాల సెక్రెటరీ అండ్ కరెస్పాండెంట్ రాయపాటి గోపాల కృష్ణ ట్రెజరర్ డా.కొండబోలు కృష్ణ ప్రసాద్ పేర్కొన్నారు. ఈ కార్యక్రమంలో కళాశాల ప్రిన్సిపాల్ డా.కొల్లా శ్రీనివాస్, కళాశాల అకడమిక్ అండ్ ఆర్డి డైరెక్టర్ డా. కె.రవీంద్ర,కళాశాల డైరెక్టర్ ఫైనాన్స్ అండ్ అడ్మినిస్ట్రేషన్ డా.ఎన్.వి. శ్రీనివాస రావు, కళాశాల సివిల్ విభాగాధిపతి డా.ఏ.ఎస్.ప్రసాద్,సివిల్ ఇంజనీరింగ్ అసోసియేషన్ కన్వినర్ పి.వి.ఎస్.మారుతీ కృష్ణ,డా.ఎమ్.ఎల్.యెన్. కృష్ణ సాయి,కళాశాల అధ్యాపక బృందం, విద్యార్థులు పాల్గొన్నారు.

A Guest Lecture was conducted by Prof. Mahendra Kumar Madhavan,IIT Hyd on 'Need for Research on Steel Structures' on Nov 8 2024

During his Guest Lecture he enlightened Students need for High Rise Buildings and importance of moving along with Nature for the preservation of Bridges Small Buildings Steel Structures etc..,

ఆర్.వి.ఆర్ & జె.సి.లో సెమినార్

గుంటూరు రూరల్, మేజర్ న్యూస్: నిర్మాణ రంగంలో బలమైన దేశ భవిష్యత్తును నిర్మించడానికి ఉక్కు నిర్మాణాలపై పరిశోధనలు అవసరం అని హైదరాబాద్ ఐ ఐ టీ ప్రొఫెసర్ మహేంద్ర కుమార్ మాధవన్ పేర్కొన్నారు. శుక్రవారం నాడు స్థానిక చౌడవరంలోని ఆర్.వి.ఆర్ & జె.సి. ఇంజనీరింగ్ కళాశాలలో సివిల్ ఇంజనీరింగ్ డిపార్ట్మెంట్ ఆధ్వర్యంలో "నీడ్ ఫర్ రీసెర్చ్ ఆన్ స్టీల్ స్ట్రక్చర్స్" అనే అంశం పై నిర్వహించిన సెమినార్ కు మహేంద్ర కుమార్ మాధవన్ ముఖ్య అతిధిగా హాజరయ్యారు. ఈ సందర్భంగా ఆయన నిర్మాణ రంగంలో వివిధ దేశాల్లో టెక్నాలజీ ఆధారంగా అవలంభిస్తున్న నిర్మాణ పద్ధతులను వివరిస్తూ, వరదలు, భూకంపాలు వంటి విపత్తు పరిణామాలు సంభవించినప్పుడు వాటి నుండి రోడ్లు, భవనాలు, వంతెనలు వంటి వివిధ నిర్మాణాలను రక్షించుకొనేందుకు చేపట్టవలసిన చర్యలను గూర్చి వివరించారు. నిత్యం పెరుగుతున్న జనాభాలో అధిక శాతం మంది ప్రజలు పట్టణ ప్రాంతాల్లోనే జీవనం సాగిస్తున్నారని... అక్కడ వున్న భూ విస్తీర్ణతలో ప్రజల నివాస సౌకర్యాలకు అనుగుణంగా ఎత్తైన భావన నిర్మాణాలు జరుగుతున్నాయని అన్నారు. ఆ ప్రాంత వాతావరణ అనుకూలత ప్రతికూలతలను తట్టుకునే విధంగా తక్కువ సమయంలో టెక్నాలజీ ఆధారంగా సుస్థిరమైన నిర్మాణాలను చేపట్టడంలో సివిల్ ఇంజినీర్లు కీలక పాత్ర పోషించాలని సూచించారు. పర్యావరణ పరిరక్షణ దిశగా నిర్మాణ రంగంలో విద్యార్థులు నూతన ఆలోచనలు చేయాలని ఆయన పేర్కొన్నారు. అద్భుత నిర్మాణాల సృష్టి సివిల్ ఇంజినీర్ల మేధా శక్తే అని ఆర్.వి.ఆర్ & జె.సి. ఇంజనీరింగ్ కళాశాల అధ్యక్షులు డా.రాయపాటి శ్రీనివాస్, ఉపాధ్యక్షులు జాగర్లమూడి మురళీమోహన్, డా.జగదీష్ కె. మద్దినేని పేర్కొన్నారు. సివిల్ ఇంజనీర్ విద్యార్థులకు కేంద్ర, రాష్ట్ర ప్రభుత్వ శాఖలతో పాటు, విదేశాల్లో సైతం మంచి అవకాశాలు ఉన్నాయని కళాశాల సెక్రటరీ & కరెస్పాండెంట్ రాయపాటి గోపాల కృష్ణ, ట్రెజరర్ డా.కొండబోలు కృష్ణ ప్రసాద్ పేర్కొన్నారు. కార్యక్రమంలో కళాశాల ప్రిన్సిపాల్ డా.కొల్లా శ్రీనివాస్, కళాశాల అకడమిక్ అండ్ ఆర్ & డి డైరెక్టర్ డా: కె.రవీంద్ర, కళాశాల డైరెక్టర్ ఫైనాన్స్ & అడ్మినిస్ట్రేషన్ డా. ఎన్.వి. శ్రీనివాస రావు, కళాశాల సివిల్ విభాగాధిపతి డా: ఏ.ఎస్. ప్రసాద్, సివిల్ ఇంజనీరింగ్ అసోసియేషన్ కన్వినర్ పి.వి.ఎస్.మారుతీ కృష్ణ, డా: ఎమ్.ఎల్.యెన్. కృష్ణ సాయి, కళాశాల అధ్యాపక బృందం, విద్యార్థులు పాల్గొన్నారు.

INDUSTRIAL TOUR

An industrial visit was conducted on 01-10-2024 to Texas Precast for II nd year Btech students where students throughly understand technology involved in Manufacturing of Precast Building Blocks

INDUSTRIAL TOUR

Final Year students visited Srisailam Power House Veligonda Tunnel works during 21,22nd August 2024 to get an insight of power generation and Tunneling works

The Statue of Unity: A Monumental Tribute to Unity and Strength

- Vallepu Charan Teja (Y21CE085)

Introduction:

Standing proudly on the banks of the Narmada River in Gujarat, India, the Statue of Unity is the world's tallest statue, a colossal tribute to Sardar Vallabhbhai Patel, one of India's foremost leaders and the architect of the nation's integration post-independence. Inaugurated on October 31, 2018, the statue not only represents national pride but also embodies Patel's enduring vision of a united India.

Design and Construction:

At 182 meters (597 feet), the Statue of Unity is an architectural marvel and symbolizes the unity Patel envisioned for the country. Designed by Indian sculptor Ram V. Sutar, the statue depicts Patel in his iconic dhoti and shawl, with his right hand raised in a gesture of addressing the nation.

The construction process involved a collaboration between Indian and international firms. The statue features a reinforced concrete core, supporting the bronze-clad exterior. An observation deck provides panoramic views of the surrounding area, while a museum dedicated to Patel's life and contributions is also part of the complex.

Sutar's design captures Patel's dignity, confidence, and determination, with his head held high and posture suggesting movement, reflecting his unyielding will and commitment to India's unity

Historical Significance:

Sardar Vallabhbhai Patel is most remembered for his decisive role in integrating over 500 princely states into the Indian Union after independence. This monumental task laid the foundation for a unified India, and Patel's efforts were instrumental in shaping the country's modern identity. The Statue of Unity honors his contributions, offering a lasting tribute to his leadership and vision.

Cultural and Economic Impact:

Beyond its symbolic importance, the Statue of Unity has profoundly impacted the region culturally and economically. As a major tourist attraction, it has drawn visitors from all over the world, bolstering the local economy. The construction of the statue has spurred infrastructural development in the area, including new roads, hotels, and visitor facilities.

Located in the Kevadia region, the statue is part of a larger tourist hub that includes attractions such as the Valley of Flowers, the Jungle Safari, and the Sardar Patel Museum. The influx of tourists has created job opportunities and stimulated local businesses, contributing to the economic growth of the region

Cultural and Economic Impact:


Naturalistic and historically accurate representation of Sardar Patel wearing his characteristic garments and assuming a walking stance.
Iron collected through the 'Loha' campaign will be melted, converted into rebar, and used in the foundation of the Statue
5,700 Mton of structural steel, and 18,500 Mton of reinforcement bars to be used to build the Statue
Viewing gallery at 153 m, can accommodate up to 200 visitorsand will offer an expansive view of the dam and environs
Core structural system comprises two semi-joined, composite concrete cylindrical cores, surrounded by a structural steel space frame to support the exterior cladding
Robust structural strength to withstand wind velocity up to 60 m/sec, vibrations and earthquakes
The three-story base will comprise a Memorial garden and a large continuous Exhibit hall developed as an Edutainment attraction, focusing on the life and accomplishments of Sardar Patel.
182M.
TALLEST
IN THE WORLD
The Shrestha Bharat Bhavan is designed to be a 128-key, 3-star hotel facility with food service, guest amenities, and conference facilities.

Challenges and Controversies:

Despite its grandeur, the Statue of Unity has faced its share of criticisms. One of the main concerns has been the high cost of the project, which exceeded 2,500 crore Indian Rupees (around USD 350 million). Some have questioned the allocation of funds, while others have raised concerns about the environmental impact of the construction. Supporters, however, argue that the statue's symbolic value, its role in promoting tourism, and its contribution to regional development justify the expense. The statue has also reignited discussions on Patel's legacy and the importance of national unity, underlining its broader cultural and historical significance.

Comparison with Other Statues:

- ***Statue of Unity: 240 meters (790 feet), including base***
- ***Spring Temple Buddha: 153 meters (502 feet), including pedestal and throne***
- ***Statue of Liberty: 93 meters (305 feet), including pedestal***
- ***The Motherland Calls: 87 meters (285 feet), including pedestal***
- ***Christ the Redeemer: 38 meters (125 feet), including pedestal***
- ***Michelangelo's David: 5.17 meters (17 feet), excluding plinth***

Conclusion:

The Statue of Unity stands as a towering tribute to Sardar Vallabhbhai Patel's vision and leadership. As the tallest statue in the world, it symbolizes the ideals of unity and strength that Patel upheld throughout his life. The statue has not only become a significant landmark of modern engineering but has also fostered cultural and economic growth in the region.

Despite some controversies, the Statue of Unity continues to inspire, attracting visitors and celebrating the enduring legacy of one of India's greatest leaders.

Conferences/ Workshops/Webinars/FDPs Attended by faculty

- Lt.Dr.UshaKranti J, Associate Professor attended a 5 day FDP on "Building Resilient Infrastructure" organized by VVIT, Nambur from24-07-2024 to 28-07-2024.

- Dr.R.Chandramohan, Associate Professor attended a six day workshop on "Sustainable Construction Practices" organized by KL University from 05.08.2024 to 10.08.2024

- Dr.N.Venkata Sairam Kumar , Associate Professor attended a workshop on "Applications of Geosynthetic in Civil Engineering" organized by Department of Civil Engg. IGIT Sarang 05.08.2024 to 09.08.2024.

- Dr. B. Kesava Rao, Associate Professor attended a 3 day Fundamental course on "GENAI" organized by RVR&JC College of Engineering from 27-08-2024 to 29-08-2024

- Dr.N.Venkata Sairam Kumar, Associate Professor , Dr. Bypaneni Krishna Chaitanya, Assistant Professor attended a workshop on "Coastal Engineering: Comprehensive Insights for Onsite Solutions" organized by Department of Civil Engineering, Dr. D. Y. Patil Institute of Technology Pimpri, Pune-18 from 2-09-2024 to 06-09-2024

Contd..,

Conferences/ Workshops/Webinars/FDPs Attended by faculty

- Dr.R.Chandramohan,Associate Professor ,P.V.S. Maruthi Krishna, Associate Professor, R Surendra babu, Associate professor, Dr.N.Venkata Sairam Kumar , Associate Professor, M Srikanth Kumar, Asst.Professor, Palepu Srilakshmi, Assistant professor, Yenigandla Naga Mahesh, Assistant Professor, B.Yellamanda Rao, Assistant Professor, Gunnam Sanijya, Assistant Professor Y.Madhavi, Assistant Professor, R.Vaishnava kumar, Assistant professor attended a 5 day FDP on "Advanced Materials and Techniques for the Repair and Strengthening of Concrerte Structure (AMRTC'24)" organized by RVR&JC College of Engineering from 23-09-2024 to 27-09-2024.

- R Surendra babu, Associate professor attended a three day Workshop on "solid waste management techniques "by AP animal husbandry department from 25-09-2024 to 27-09-2024

- Gunnam Sanijya, Assistant Professor attended a one-day Workshop on "pavement characteristics organized by SRM-AP on 07-10-2024"

PLACEMENT STATISTICS

CIVIL CARNIVAL

The Civil Engineering Department recently celebrated the spirit of innovation, creativity, and teamwork with the successful conclusion of the Civil Carnival. This event served as a platform to showcase the talents and skills of our students while promoting the core values of civil engineering: sustainability, resilience, and progress.

The carnival was filled with engaging activities, including hands-on projects, competitions, and insightful discussions, all designed to challenge the participants' knowledge and problem-solving abilities. Students had the opportunity to participate in innovative engineering challenges that tested their technical expertise. .

A key highlight of the event was the model making, where students displayed their cutting-edge projects and research, ranging from smart city technologies to sustainable construction techniques, making Civil Carnival was a true reflection of the department's commitment to nurturing talent, encouraging innovation, and fostering collaboration. We are immensely proud of all the participants and organizers who made this event a resounding success. Their enthusiasm, dedication, and teamwork were the driving forces behind the carnival's success.

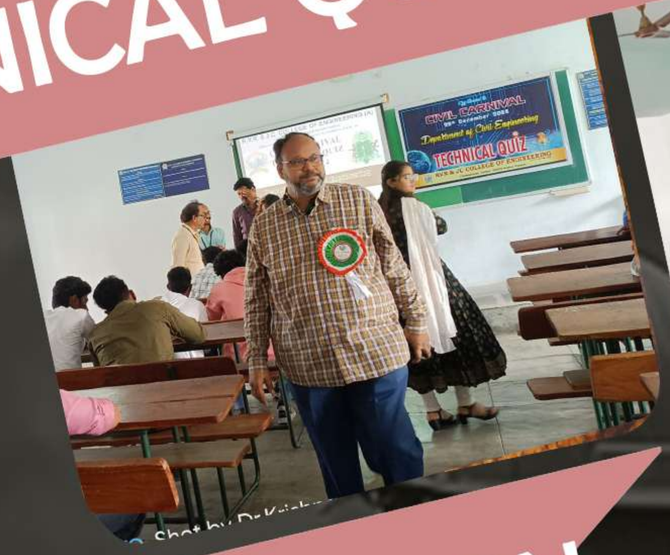
Carnival Glimpses

Contd..,

AUTOCAD TECHIE

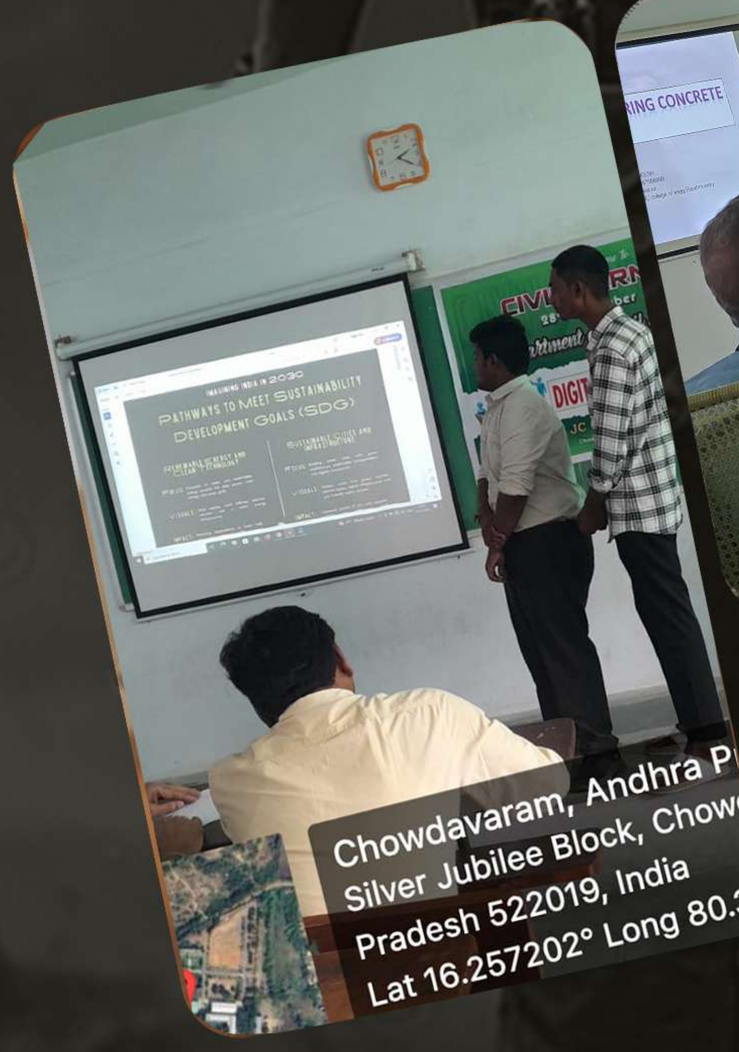
TREASURE HUNT

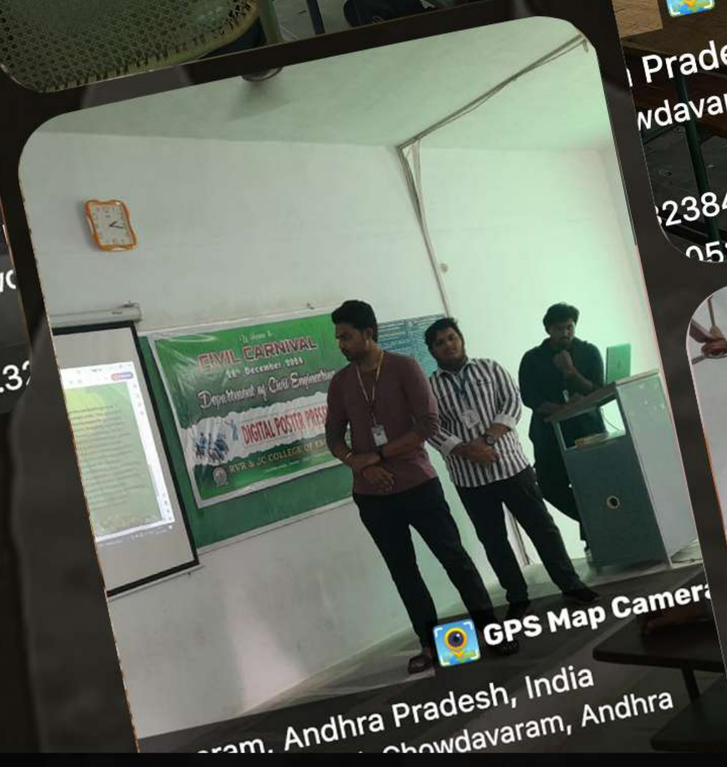
TECHNICAL QUIZ



POSTER PRESENTATION

PAPER PRESENTATION





CIVIL CAMPSES CARNIVAL

NCC

Annual Training Camp (ATC-VI)
2 Boys

IGC-TSC Camp
1 Boy

EBSB Camp
1 Girl

Combined Annual Training Camp (CATC-IV)
7 Boys

Combined Annual Training Camp (CATC-II)
1 Boy

ARMY ATTACHMENT CAMP
1 Boy

/NCC

M. Hareeswar
Y21CE062

P. Manoj Kumar
Y21CE056

Md. Mahaaj Basha
Y21CE076

D. Yadagiri
Y21CE015

K. Vamsi
Y21CE047

B Certificate Achievers

G. Durga Bhavani
Y21CE031

J. Geetanjali
Y21CE039

J. Dinakar
Y21CE037

Contd..,

DEC 21ST ALUMNI MEET

FELICITATION OF STAFF BY ALUMNI

The Civil Engineering Department recently hosted a vibrant Alumni Meet, bringing together graduates from various batches to reconnect, share experiences, and celebrate the department's growth. The event featured a warm welcome from the Head of Department, followed by insightful talks from alumni who shared their career journeys, challenges, and successes in fields like construction, urban planning, and infrastructure development. Current students had the opportunity to engage in panel discussions and workshops, gaining valuable industry insights and practical advice. Alumni also expressed their gratitude for the department's support and the friendships formed during their studies. The meet provided an excellent platform for networking, strengthening ties between past and present students, and reaffirming the department's commitment to fostering future engineers who will continue to make significant contributions to the field.

"Collaborative Innovation: Advancing Experimental and Analytical Research in Civil Engineering"

-by Staff and Students

Both students and staff actively engage in experimental and analytical research to push the boundaries of innovation and contribute to advancements in infrastructure and construction. Students, often are guided by faculty of department to , participate in hands-on experimental research, using state-of-the-art laboratories and field studies to test materials, structural integrity, and environmental factors to enhance their practical knowledge but also fosters critical thinking and problem-solving skills. Staff members, including professors and researchers, lead cutting-edge analytical studies and address real-world challenges. The collaboration between students and staff in this research environment helps bridge theoretical concepts with practical applications, fostering a culture of innovation and continuous improvement in Civil Engineering practices.

Research Papers Published from Collabarative Reasearch effort of Staff and Students

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

REVIEW ON FRESH AND HARDENED PROPERTIES OF M-SAND IN CONCRETE

Tejaswini Nandipati*1, Eswar Venkata Sai Akula*2, Issac Galinki*3, Rahul Billa*4

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*2,3,4Students, Department Of Civil Engineering, RVR&JC College Of Engineering, Guntur, India.

DOI : https://www.doi.org/10.56726/IRJMETS63371

ABSTRACT

The use of Manufactured Sand (M-Sand) in concrete production has gained significant attention in recent years due to the depletion of natural sand resources and environmental concerns associated with sand mining. M-Sand is produced by crushing rocks, typically granite or basalt, to produce sand-sized particles that can be used as a fine aggregate in concrete. This review paper critically evaluates the effect of M-Sand in concrete, on the workability, strength, and durability of concrete. The findings suggest that M-Sand can effectively replace natural sand without compromising concrete quality, provided that the M-Sand meets specific grading and particle shape criteria. Furthermore, the use of M-Sand in concrete demonstrates potential environmental and economic benefits, including reduced dependence on natural sand and lower construction costs. However, challenges such as the variability in M-Sand quality and its impact on long-term durability require careful consideration. Overall, M-Sand offers a viable alternative to natural sand, contributing to sustainable construction practices while maintaining concrete's structural integrity.

Keywords: M-Sand, Compressive Strength, Flexural Strength, Splitting Tensile Strength.

International Journal of All Research Education and Scientific Methods (IJARESM),
ISSN: 2455-6211, Volume 12, Issue 11, November-2024, Available online at: www.ijaresm.com

Temperature Studies on Strength of Concrete by the Replacement of Sand with Copper Slag in Concrete

Dr. J. Usha Kranti[1], P. PedaBabu[2], Y.T.A.Sai[3], Adinarayana Reddy[4], Guruswami[5]

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[2,3,4,5]Department of Civil Engineering, R.V.R&J.C College of Engineering, Chowdavaram, Guntur, Andhra Pradesh.

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ABSTRACT

This document gives formatting guidelines for authors preparing papers for publication in the International Journal of All Research Education & Scientific Methods. The authors must follow the instructions given in the document for the papers to be published. The margins must be set as follows: Top = 0.7cm, Bottom = 0.7cm, Left = 0.65cm, Right = 0.65cm. Paper Title must be in Font Size 24, with Single Line Spacing. Authors Name must be in Font Size 12. Abstract should contain at least 200 words. Abstract explanation should be Times New Roman font, 09 Size, Bold, Single line spacing, text alignment should be justified. Author's Profile must be in Font Size 8, Hanging 0.25 with single line spacing.

The main objective of this project is to study the properties of copper slag as a partial replacement of fine aggregate for copper slag at different proportions (0%, 20%, 40%, 60% and 100%) of Copper Slag. Copper slag is the alternative material resulted during the process of matte smelting and improving the copper. To obtain 2.2-3 tons of copper slag about 1 ton of copper is required. In the present study it is proposed for the using of factory waste materials which has encouraged in construction industry for production of concrete as it contribute in the reduction of usage of artificial sources. For this research work, M30 grade concrete was used and tests were conducted. Various concrete mixtures were prepared with different proportion of copper slag as fine aggregates replacement. Concrete mixtures were evaluated for compressive strength 28 days at ambient room temperature curing. The result for concrete indicted that workability increases with increase in percentage of copper slag. A substitution of about 40% of copper slag as a fine aggregate gives higher compressive strength.

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Volume:06/Issue:10/October-2024 Impact Factor- 8.187 www.irjmets.com

COST ESTIMATION OF AUTOMATIC IRRIGATION SYSTEM USING SOIL MOISTURE SENSOR THROUGH INTERNET OF THINGS (IOT)

K. Leela Krishna*1, Konda Venkateswara Reddy*2, Krishnam Yedukondalu*3, Karnati Naga Lakshmi*4, Kommineni Gokul Sai Krishna Chowdary*5, Ketavath Nagarjuna Naik*6

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DOI: https://www.doi.org/10.56726/IRJMETS62481

ABSTRACT

This report presents comprehensive cost estimation for an automatic irrigation system utilizing soil moisture sensors and IoT technology. The system is designed to optimize water usage by monitoring soil moisture levels and triggering irrigation only when necessary. By leveraging IoT capabilities, the system enables remote monitoring and control, enhancing operational efficiency and reducing water wastage. The report analyzes various components, including sensors, microcontrollers, IoT gateways, communication modules, power supplies, irrigation valves, and cloud platforms, to estimate the total cost of implementation. Factors such as system size, sensor density, and cloud platform usage are considered to provide a realistic cost assessment. Additionally, the report discusses potential maintenance, operating, and labour costs, as well as the potential return on investment (ROI) from implementing such a system.

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International Research Journal of Modernization in Engineering Technology and Science
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Volume:06/Issue:10/October-2024 Impact Factor- 8.187 www.irjmets.com

STUDY ON MANUFACTURING OF PLASTIC SAND BRICKS

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*2,3,4,5,6Student, Department Of Civil Engineering, RVR&JC College Of Engineering, Chowdavaram, Guntur, India.

DOI : https://www.doi.org/10.56726/IRJMETS62422

ABSTRACT

The modern world is confronting major waste management issues, particularly with plastic garbage. Every day, thousands of tonnes of plastic are deposited in landfills, but there is insufficient capacity. This work intends to create a method for processing and recycling plastic. This work aims to reuse plastic by using it for one specific purpose. The work investigated several brick features, including colour, size, shape, structure, and weight, density, and others. The results indicate that the compressive strength of the sand bricks is directly influenced by the ratio of plastic used in their composition. Additionally, the water absorption test shows that Sample 2 has a lower percentage of water absorption compared to Sample 1, suggesting a potential correlation between plastic content and water resistance. This indicates that the ratio of plastic in the sand bricks directly affects their compressive strength and water absorption properties. The results suggest that adjusting the plastic content can be a key factor in optimizing the performance of the sand bricks. Additionally, lower water absorption in Sample 2 indicates better durability and resistance to environmental factors.

Keywords: Plastic, Sand, Bricks.

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Durability Studies on Expansive Soils Stabilized with Cement using Bagasse Ash as Additive

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ABSTRACT

The evolving technology in road construction is increasingly addressing the challenges posed by changing vehicular patterns, materials, and subgrade conditions, particularly with expansive soils. These soils undergo significant volume changes due to their physicochemical properties, leading to damaging cycles of swelling and shrinkage that can compromise lightly loaded structures such as pavements and residential buildings. To mitigate these issues, chemical stabilization methods, particularly the use of cement, have gained prominence. By incorporating 2% to 6% cement into expansive soils, it's possible to enhance the material's density and strength, transforming it into a semi-rigid slab that reduces liquid limits, plasticity, and potential volume changes while increasing shrinkage limits and shear strength. This approach not only preserves existing materials but also reduces the need for expensive excavation and replacement. Moreover, the integration of industrial waste materials in road construction is a growing trend. This practice is not only economically beneficial but also environmentally friendly, addressing pollution and disposal challenges associated with industrial byproducts. India, with its vast industrial network, produces millions of metric tons of waste that can be repurposed for highway construction, further enhancing sustainability in the sector. Recent studies have explored the effectiveness of using waste materials for soil stabilization, particularly under fluctuating moisture conditions. In this context, the current paper investigates a mixture of soil, cement, and bagasse (8% cement and 8% bagasse by weight of soil) to analyze its performance under wetting-drying cycles and its impact on swell pressure. The findings aim to provide insights into reducing volume changes in expansive soils, enhancing the longevity and durability of road infrastructure.

Keywords: Wetting-Drying, Swell Pressure, Soil Stabilization, Industrial Waste, Cement Stabilization

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NDVI LAND COVER CLASSIFICATION FOR KRISHNA DISTRICT, ANDHRA PRADESH, INDIA FOR THE YEAR 2020 BY RS AND GIS TECHNIQUES

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ABSTRACT

This study focuses on land cover classification for Krishna District in 2020, utilizing remote sensing (RS) and geographic information systems (GIS) techniques with Landsat 8 imagery. A mosaic of Landsat 8 images has created to develop a comprehensive view of the study area. This mosaic images then clipped to isolate the relevant portion of the district. NDVI (Normalized Difference Vegetation Index) analysis conducted on the clipped imagery to facilitate the classification of land cover types. The results identified six distinct land cover categories: Water, Built-up Areas, Barren Land, Shrub and Grassland, Sparse Vegetation, and Dense Vegetation. The findings provide valuable insights into the vegetation dynamics and land use patterns in Krishna District, contributing to better resource management and planning.

Keywords: NDVI, GIS, Remote Sensing, land Cover Classification.

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THE THREE GORGES DAM - MODERN MARVEL IN CIVIL ENGINEERING

-by Sowjanya Kunasani

The Three Gorges Dam (TGD), *a colossal engineering project spanning the Yangtze River, stands as the largest hydropower facility in the world. It represents both a remarkable feat of modern engineering and a sourcee of intense debate due to its massive environmental, social, and economic impacts. This article reviews the dam's key achievements, its controversial consequences, and the complex challenges it continues to face.*

Engineering and Power Generation

Stretching more than two kilometers across the Yangtze River, the Three Gorges Dam is nearly 200 meters high, with a reservoir extending 600 kilometers. Its main purpose is to provide flood control, power generation, and improved river navigation. The dam's installed hydroelectric capacity is one of its most significant accomplishments, expected to exceed 22,000 MW once fully completed, surpassing the Itaipu Dam in Brazil, the previous largest hydropower project. The TGD has already made a considerable contribution to China's power grid. By 2007, the dam's turbines were generating around 62 billion kilowatt-hours (kWh) of electricity annually, about two-thirds of the total expected upon completion. This helps offset China's reliance on fossil fuels, particularly coal, and contributes to reducing CO2, SO2, and NOx emissions. In 2020, the TGD generated a record 111.8 TWh, providing a substantial portion of China's electricity demand. However, despite these benefits, the TGD's contribution to China's electricity supply has been modest compared to expectations, mainly due to China's rapidly growing energy consumption.

Environmental and Social Impacts

The environmental impact of the Three Gorges Dam has been significant and, in many cases, contentious. One of the most immediate and visible effects has been an increase in landslide activity along the riverbanks, caused by fluctuating water levels in the reservoir. The situation has proven more severe than expected, with numerous fatalities linked to landslides. The dam's construction has also resulted in the submergence of critical habitats, threatening local biodiversity. Some species face extinction due to disrupted reproduction patterns and habitat fragmentation, which poses long-term challenges to ecosystem stability. In addition to biodiversity loss, the TGD has significantly altered downstream ecosystems. The loss of sediment flow has reduced nutrient availability, contributing to erosion in river systems, wetlands, and coastal ecosystems. Fisheries and agricultural lands are among the areas most affected, raising concerns about the sustainability of local economies that depend on these resources. Furthermore, the dam has been associated with changes in seismic activity. While a direct link to major earthquakes, such as the 2008 Sichuan earthquake, remains difficult to prove, the increased pressure on underlying geological plates has sparked concerns about the dam's contribution to seismic risks. Beyond the environmental costs, the Three Gorges Dam has had profound social and political implications. The project necessitated the displacement of over a million people, a complex and ongoing challenge. The relocation process has led to widespread dissatisfaction and unrest, with many affected individuals facing uncertain futures and loss of livelihoods. The social costs associated with resettlement, coupled with the political controversies surroundi ng the project, highlight the difficulty of balancing large-scale infrastructure projects with the well-being of affected communities.

Mitigating Environmental Impact

Despite the TGD's successes in terms of power generation and flood control, its environmental consequences remain a major concern. In response to these challenges, China has implemented some mitigation measures, such as efforts to control erosion, protect biodiversity, and address the risk of landslides. However, these efforts have proven insufficient in fully counteracting the environmental damage caused by the dam. For instance, the decrease in sediment flow downstream has led to long-term ecological disruption, and biodiversity loss continues to be a pressing issue. While the TGD has helped reduce fossil fuel use and associated emissions, the overall environmental impact remains a contentious topic. The full scope of the dam's effects on local ecosystems and communities is still unfolding, requiring ongoing efforts to minimize its negative consequences.

Conclusion

The Three Gorges Dam has undeniably achieved its primary objectives of flood control, power generation, and improved river navigation. However, the project's environmental and social costs have sparked significant controversy. While the dam contributes to China's clean energy goals and provides essential flood protection, its long-term effects on biodiversity, ecosystems, and displaced populations continue to be felt. Moving forward, the challenge lies in balancing the benefits of this engineering marvel with efforts to mitigate its profound environmental impact and ensure the social well-being of those affected. Despite its controversies, the Three Gorges Dam remains a symbol of China's ambition to harness natural resources for national development. Whether it will be remembered as a triumph of modern engineering or as an environmental and social disaster depends on the country's ability to address the challenges it continues to pose.

R.V.R. & J.C. COLLEGE OF ENGINEERING, GUNTUR, A.P.

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