



Kakatiya Institute of Technology & Science, Warangal

DEPARTMENT OF CIVIL ENGINEERING



DECEMBER 2021

VOL 10, ISSUE 1

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Vision of the Department:

> The Vision of the department is to become a leading Centre of excellence in producing quality human resource in civil engineering by developing a sustainable technical education system to meet the changing technological needs of the Country. The Department will make significant contributions to the economic development of the state, region and nation.

Mission of the Department:

- > To produce outstanding Civil Engineering graduates with highest ethics
- > To impart quality education in civil engineering to raise satisfaction level of all stake holders.
- > To serve society and the nation by providing professional civil engineering leadership to find solution to community, regional and global problems and accept new challenges in rapidly changing technology.

Programme Educational Objectives (PEOs):

The Programme Educational Objectives (PEOs) of the civil engineering program are designed to produce skilled engineers who are ready to contribute effectively to the civil engineering profession and are ready to handle the challenges of the profession. The Programme Educational Objectives (PEOs) are defined considering the opinion of all the stakeholders.

PEO 1	Demonstrate professional competency in varied fields of engineering industry and/or pursue higher education by nourishing mathematical scientific and engineering precepts.
PEO 2	Investigate, analyze and design solutions to complex civil engineering problems ensuring safety, sustainability and ecological harmony.
PEO 3	Exhibit professionalism by transferring latest technology and understanding societal impacts to protect interests of the public at large.
PEO 4	Develop competence by engaging in lifelong learning, in order to integrate ethics, economics and equity.

Programme Outcomes (POs):

PO1	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	Engineering knowledge
PO2	Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	Problem analysis
PO3	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.	Design/development of solutions
PO4	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.	Conduct investigations of complex problems
PO5	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	Modern tool usage
PO6	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.	The engineer and society
PO7	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	Environment and sustainability
PO8	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practices.	Ethics
PO9	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings	Individual and team work
PO10	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.	Communication
PO11	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.	Project management and finance
PO12	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	Life-long learning

MY BUILDING WILL BE MY LEGACY. THEY WILL SPEAK FOR ME, LONG AFTER I'M GONE!

- JULIA MORGAN



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Program Specific Outcomes (PSO's)

PSO 1	Apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to civil engineering
PSO 2	Design civil engineering structures, component or process to meet desired needs with appropriate consideration for the public health and safety, cultural, societal, sustainability and environmental considerations
PSO 3	Appreciate professional and ethical responsibility concerning legal, contemporary, environmental & cultural issues and consequent responsibilities relevant to the professional engineering practices and norms of civil engineering practice code.
PSO 4	Appreciate the role of research in civil engineering practice and recognize the need for and to engage in life- long learning in civil engineering and allied domains as relevant to rapidly changing technology.

Chief Editor Message:

It gives me immense pleasure in welcoming NEWSLETTER, on behalf of the entire campus community of KITS Warangal. This newsletter will serve to reinforce and allow increased awareness, improved interaction and integration among all of us. This inaugural issue is a brief account of the important events of Civil Department. I congratulate all those who have contributed in bringing out this issue. I hope this newsletter will inspire all of us for a new beginning enlighten with hope, confidence and faith in each other.

- Dr. K. Ashoka Reddy, Principal



Editor Message:

KITSW is well known for its academic excellence and dedicated approach towards dissemination of knowledge in the academic world. It gives me immense joy and satisfaction to finally pioneer the newsletter of Civil Engineering Department. A lot of effort has gone into the making of this issue. The best thing about this issue is that it represents the creative side of students to a fair degree. So this time an attempt is made to bring out the talent concealed within our student community. This issue includes news of articles, technical events, symposiums etc. We hope you enjoy reading this issue as much as we have enjoyed making it. Finally, I anticipate that this newsletter will instigate all of us for a novel start.

- Dr. M. Srikanth, Professor & Head, CED



Editor In-charge Message:

It is with great honor and great pleasure for us to involve in laying the ground work of this newsletter. We congratulate the Editorial Team for their hard work in producing this Newsletter. We are absolutely certain that the best is yet to come. We hope that you will enjoy reading this newsletter.



Dr. S. Sunil Pratap Reddy
Associate Professor, CED



Smt. Ch. Sree Laxmi Pavani
Assistant Professor, CED

INDUCTION AND ORIENTATION PROGRAMME

The objective of this program was to acclimatize the students to the new environment and get them acquainted with the institution culture. The induction program comprised of interesting activities like motivational speeches and review, social sensitization, team building activities, expert lectures, debate and campus orientation sessions. The rationale for induction was to ensure a smooth transition for the students into the university system. There are various technical committees in the Institute like CEA, ICI, IRSC, IEI, IGBC and cultural committee through which they organize many events under the guidance of faculty members. The session “Introduction to extra-curricular activities” was to introduce these cells and their activities to the first-year students. The heads of various committees were assigned the task of sharing their vision and objectives of the respective cell and to introduce all the major events organized by these cells in the institute. They motivated the students to become the member of the cell by explaining the advantages of being in these cells. In general, it gave an insight to the students on the extracurricular and co-curricular activities happening in the Institute throughout the year which will help them improve their soft skills. In this session students of 1st year were introduced to the respective programs and its objectives. Faculty gave details regarding courses, internships, laboratories. Students were also apprised about the various opportunities in research and industry.

- Commencement of classwork for B.Tech. first year Students - November 22, 2021.
- Commencement of classwork for B.Tech. second, third & final year Students - August 06, 2021.



Orientation Programme of first year students



HoD, Senior faculty & Students attending Induction Programme



Faculty & Students attending Induction Programme

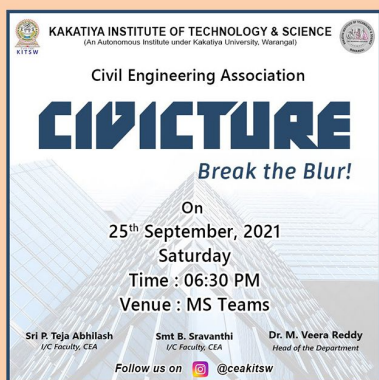


HoD addressing the Orientation Programme

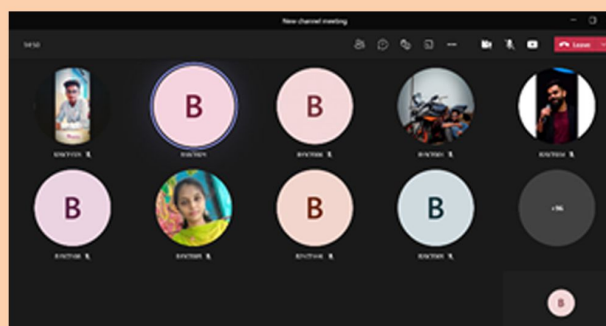
Glimpse of Induction & Orientation Programme

➤ CIVICTURE-break the blur

As part of the activities of the Civil Engineering Association, the CEA body has organized their first event titled ‘CIVICTURE – break the blur’. In this event the session was started at 6:30 p.m. and the Genral Secretaries Mr. S. Rajesh Kumar & Mr. R.N.V.S. Rithvik have explained the rules and regulations that need to be followed in this event. The participants were given a link to the online questionnaire where they were asked to name the structure behind the blur. The participants involved very enthusiastically and gave their responses. Then the session was followed by doubts clarification and the session was concluded by 7:00 p.m. The continous support of faculty, Student Coordinators and participants made the event a grand success.



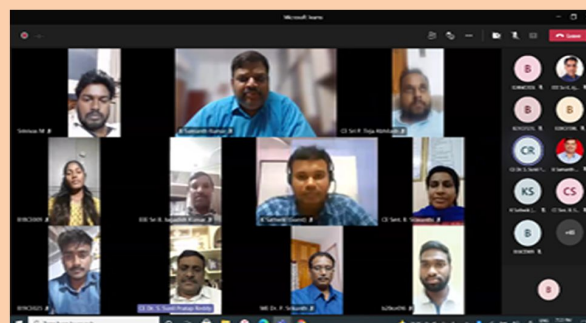
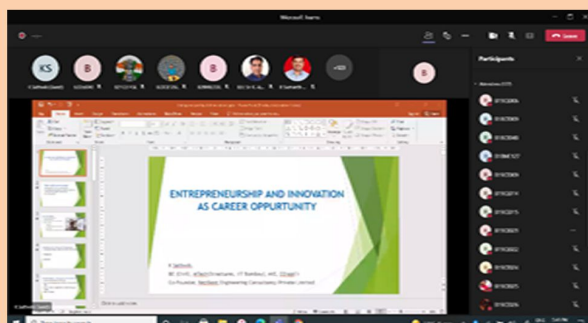
Poster of the Event



Students participating in the event

➤ GUEST LECTURE ON ENTREPRENEURSHIP AND INNOVATION AS CAREER OPPORTUNITY:

The guest lecture was all about “Entrepreneurship and innovation as career opportunity”. The Speaker of the session was Sri K. Sathwik, B.E. (Civil), M.Tech. (Structures, IIT Bombay), MIE, Civil Engg.(I), Cofounder, Resilient Engineering Consultancy Private Limited. The speaker started the session at 5:30 p.m. The speaker explained what exactly the entrepreneurship skills are. Then he explained about difficulties faced in this business sector. He then continued the session with few suggestions to build a team and to overcome the conflicts. Later participants were given few techniques to implement an idea in a new way to achieve the success. He explained about personal branding which is a one of the sustainable businesses measure these days. Ultimately the students of civil department were boosted by speaker’s words about opportunities for civil engineering students. During the session, the speaker interacted with the students by asking some questions and the student answered the questions actively. Then the session was followed by doubts clarification and was concluded at 7:00 p.m. In this session, 122 Students were participated. Students and faculty from other departments have also attended the Guest Lecture. All the attendees were very much excited as the topic depicts the situation of the present scenario.



Speaker Sri K. Sathwik, explaining the concept of “Entrepreneurship and innovation as career opportunity” through Virtual Presentation

“NOTHING IS BUILT ON STONE; ALL IS BUILT ON SAND, BUT WE MUST BUILD AS IF THE SAND WERE STONE”

– JORGE LUIS BORGES

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➤ PHOTOFACORY- CAPTURE THE STRUCTURE:

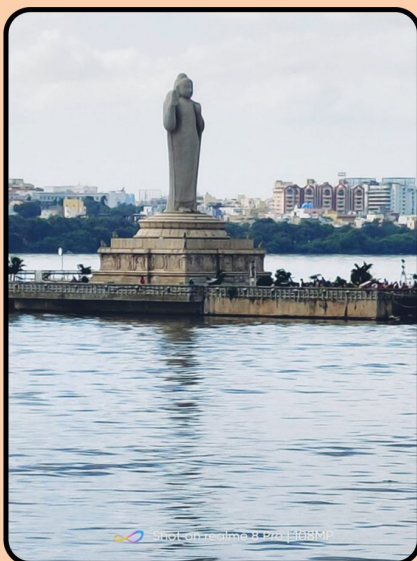
Photo factory is a contest where the students need to capture a structure and describe the beauty and salient features of the structure. This contest helps students realize the beauty hidden in civil engineering and also make them learn the importance of the structure. Not only visiting a monument or a place but gaining knowledge on its history, functional and physical characteristics must be the quality of a civil engineer. Civil engineers convert a napkin model into a real structure which is an over-whelming skill and this can be shown through photographs. This contest was conducted from 30-10-2020 to 21-11-2020 which is a three-week long contest. Civil Engineering Students of all the semesters showed great interest towards the contest and actively participated in the event with a winning spirit. Students visited different types of civil structures and have captured. In this event 46 Students participated. They made the event a huge success by capturing magnificent and impressive pictures of various civil engineering marvels.



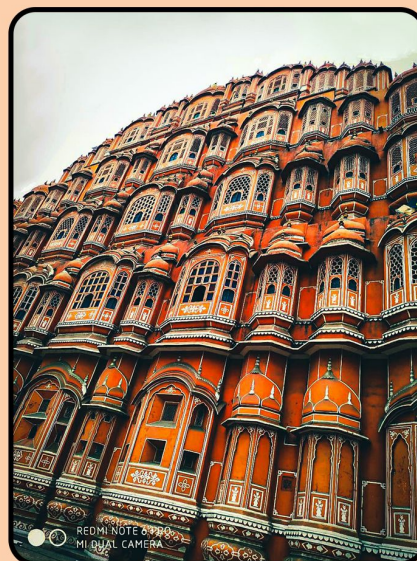
Event Poster



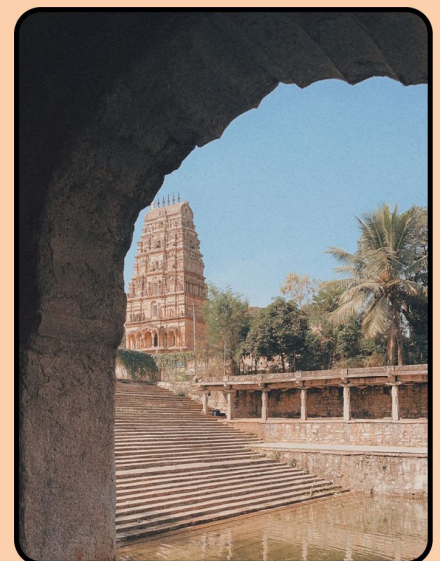
Captured by: D. Rohith



Captured by: D. Mavitha



Captured by: N. Meenal



Captured by: T. Prathiba Reddy

Glimpse of the photos sent by participants



HONOURS / MINORS IN ENGINEERING

Every student has specific abilities, interests, career goals and wishes to enhance his/her academic learning experience. Employers look for graduates with different combinations of competencies with T-shaped skills. Hence, opportunities for additional learning are the major requirement for students to bridge the industry-academia gap. To support students' additional learning needs, the following provisions are made in the URR18 curriculum. A student will be eligible to get UG Degree with Honours in one's own discipline and/or additional Minor in Engineering in a discipline other than one's own, if he/she completes an additional 20 credits, in addition to basic degree 160 credit requirement. These additional 20 credits could be acquired through MOOCs.

➤ Honours Curriculam

S.No.	Course Code	Course Name	Credits
Elective courses (any 6 to 9 courses)			
1	U18HCE1001	Artificial intelligence (AI)	18
2	U18HCE1002	Introduction to Engineering seismology	
3	U18HCE1003	Theory of Elasticity	
4	U18HCE1004	Integrated waste Management for a Smart City	
5	U18HCE1005	Structural Dynamics	
6	U18HCE1006	Soil Structure Interaction	
7	U18HCE1007	Higher Surveying	
8	U18HCE1008	Mechanical Characterization of Bituminous Materials	
9	U18HCE1009	Probability methods in Civil Engineering	
10	U18HCE1010	Sustainable Materials and Green Buildings	
11	U18HCE1011	Environmental Geomechanics	
12	U18HCE1012	Repair and Rehabilitation of Structures	
13	U18HCE1013	Infrastructure planning and management	
14	U18HCE1014	Advanced surveying	
15	U18HCE1015	Digital land surveying & Mapping	
Laboratory Courses (any 2 courses)			
16	U18HCE1016	Structural Engineering software applications laboratory	2
17	U18HCE1017	Project Management and Geomatics Laboratory	
18	U18HCE1018	Structural Engineering laboratory	
19	U18HCE1019	Applied Civil Engineering software Laboratory	
Total Credits			20

**“SCIENTISTS INVESTIGATE THAT WHICH ALREADY IS;
ENGINEERS CREATE THAT WHICH HAS NEVER BEEN.”
-ALBERT EINSTEIN**



> Minors Curriculam

S. No.	Course Code	Course Name	Credits
Minor Compulsory Courses			18
1	U18MCE1001	Strength of Materials	
2	U18MCE1002	Soil Mechanics	
3	U18MCE1003	Environmental Engineering	
Minor Elective Courses (any 3 to 6 courses)			
4	U18MCE1004	Structural Analysis-1	
5	U18MCE1005	Design of Reinforced Concrete Structures	
6	U18MCE1006	Advanced Concrete Technology	
7	U18MCE1007	Foundation Engineering	
8	U18MCE1008	Design of Steel Structures	
9	U18MCE1009	Fluid Mechanics	
10	U18MCE1010	Construction Planning and Management	
11	U18MCE1011	Advanced Surveying	
12	U18MCE1012	Engineering Geology	
13	U18MCE1013	Sustainable Materials and Green Buildings	
14	U18MCE1014	Concrete Materials	
15	U18MCE1015	Surveying	
16	U18MCE1016	Fluid Mechanics and Hydraulic Machines	
17	U18MCE1017	Earthquake Engineering	
18	U18MCE1018	Repair and Rehabilitation of Structures	
Minor Laboratory Courses (any 2 courses)			2
19	U18MCE1019	Civil Engineering Material Testing Laboratory	
20	U18MCE1020	Surveying Field Work Laboratory	
21	U18MCE1021	Building Planning and Drawing Laboratory	
22	U18MCE1022	Hydraulic & Hydraulic Machinery Laboratory	
Total Credits			20

GREEN BUILDINGS – AN OVERVIEW

About Workshop:

The construction industry in India is one of the largest economic activities. As the sector is growing rapidly, preserving the environment poses many challenges. To protect the sustainable ecology, it is required to take a paradigm shift from conventional construction to sustainable construction. In this regard, green buildings designed to use less water, improve energy efficiency, conserve natural resources, and provide healthier spaces will play a catalytic role in addressing environmental, social, and economic issues and concerns. The objective of this program is to implement, practice, analyse, provide awareness and evaluate the performance of green buildings. This workshop facilitates measuring, designing, and developing a methodology to assess building performance by implementing strategies to uphold sustainable building principles.

Objectives:

The workshop objectives are

- To provide awareness on sustainable practices to all participants
- To Understand the concept of green buildings
- An overview of various tools and software used for green evaluating Green Buildings

Details of the program:

Date: 14.09.2021, Tuesday

Time: 6: 00 to 7:30 PM

Venue: Google Meet (online platform), KITS, Warangal-506015, Telangana.

Topic : Green Buildings – An Overview

Speaker : Sri. T. Prem Sai Reddy, Engineer, IGBC Hyderabad.

The talk has created awareness about the Sustainability concepts, exploitation of natural resources, Leadership in Energy and Environmental Design (LEED) rating Tool. The talk also emphasized the Life Cycle Assessment (LCA) framework for the promotion of sustainable goals without compromising the performance or environment. The talks also highlighted the use of phytoremediation and other advanced wastewater treatment methods for better use of wastewater. Highlighted the use of waste materials in building sector and their advantages from a sustainable point of view. The importance of embodied energy assessment and the use of wastes and renewal materials has been discussed. More emphasis was made on responsible consumption of materials through sustainable materials and their application in the building sector with an energy-efficient built environment.



Speaker Sri. T. Prem Sai Reddy, Engineer, IGBC Hyderabad addressing the event

“WE ARE THE CIVIL ENGINEERS, WE DON’T FALL, WE MAKE OTHERS FALL.”

- RACHANA RAWLE



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FACULTY PATENTS

Appreciating our faculty Sri N. Srikanth from Civil Engineering department who has sound integrated knowledge in Structural Engineering for officially getting recognised and certified by Australian Government. Apprising N. Srikanth for being an innovative inventor for the patent **“SELF COMPACTING CONCRETE WITH PROCESSED RECYCLED COARSE AGGREGATE”** with patent number **2021104204** claimed the legal rights on it & endorsed a certificate of grant for Innovation patent. In the growing world, infrastructural development is one of the key attributes. This patent fetches information to be aware of the significance of the sustainable goals in construction industry which is surge in demand. To eliminate some disputes aligned with conventional concrete Sri N. Srikanth gave a sustainable approach to utilise recycled aggregate in self compacting concrete which is effectively used in highly reinforced structures.

Published as AU2021104204A4



Sri N. Srikanth
Assistant Professor, CED



Drop weight impact testing machine



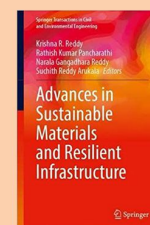
Steel ball at centre of specimen



Certificate of the Patent

FACULTY BOOK PUBLICATIONS

It is greatful to have expertise faculty Dr. A. Suchith Reddy and Dr. N. Gangadhara Reddy from civil engineering department who contributed their work in publishing book titled **“ADVANCES IN SUSTAINABLE MATERIALS AND RESILIENT INFRASTRUCTURE”** published by Springer. The edited book comprises invited book chapter contributions from global experts in the field of sustainable materials and resilient infrastructure. The book covers the most critical and emerging topics for creating sustainable solutions for the construction industry, promoting the technologies and monitoring methods for resilient infrastructure. It focuses on sustainable solutions and offers techniques and methodologies to deliver high-quality end solutions in civil engineering. In addition, the content provides knowledge-based information for the readers to assess, monitor, measure, and practice sustainability for resilient infrastructure. The contents of the volume are a blend of academic research work and industrial case studies. It covers the use of sustainable materials like Lime-Pozzolona Binders, biopolymers, lignosulphonate, lightweight aggregates made from fly ash, calcinated clay, paper ash, and limestone as amendments/ameliorators for soil remediation, development of neo-construction materials and composites for civil engineering applications. Design of innovative pavements using alkali activation and pervious concrete for sustainable infrastructure is also discussed. The chapters also highlight the role of civil engineers in achieving UN Sustainable Development Goals, promoting climate change design for urban landscapes, and modelling building energy demand. This book is framed to address the principles and practice from the corners of geoenvironment, sustainable construction materials, low carbon materials, energy efficiency, and waste management. It is a valuable reference for faculty, researchers, field experts, scientists, and practicing engineers.



Coverpage of the Publication



Dr. A. Suchith Reddy
Assistant Professor, CED



Dr. N. Gangadhara Reddy
Assistant Professor, CED

FACULTY PUBLICATIONS 2020 - 2021

S.No.	Name of the Faculty	Title with page nos.	Name of the Journal	Journal Index
1	Dr. M. Veera Reddy	Use of Polyacrylamide for Erosion and Fugitive Dust Control of Geomaterials - A Review	International Conference on Recent Developments in Sustainable Infrastructure (ICRDSI -2020)	Conference Proceedings
2	Dr. L. Sudheer Reddy	Durability Studies on Bacterial Concrete Embedded with Bacillus Subtilis, pp:583-591	Design Engineering	Scopus
3	Dr. M. Andal	“Applications of classical Newmark method to statically indeterminate structures”	International conference on Aeronautics And Beyond (ICAB-2020)	Conference Proceedings
4	Dr. D. Hari krishna	Comparative study on shear performance of blended pozzolonic RC beams with fly ash and recycled aggregates, Vol. 47, No. 4, October - November 2020 pp. 273-283	CSIR Chennai Journal of Structural Engineering	Scopus
5	Dr. S. Sunil Pratap Reddy	Durability Studies on Bacterial Concrete Embedded with Bacillus Subtilis, pp:583-591	Design Engineering	Scopus
6	Sri. N. Srikanth	Stress-Strain Behaviour of Selfconsolidated Processed Recycled Aggregate Concrete 1-11	SPRINGER	Scopus
7	Sri. N. Srikanth	Studies on Infiltration Rate of Pervious Concrete, 1-11	SPRINGER	Scopus
8	Sri. Md. Shakeel Abid	Performance of polypropylene textile encased stone columns	Geotextiles & Geomembranes	SCIE
9	Dr. A. Suchith Reddy	Developing Sustainable Performance Index (SPI) for Self Compacting Concretes	Journal of Building Engineering	SCI
10	Dr. A. Suchith Reddy	Interrelationship and rationality between Sustainable Indicators and Criteria - A Fuzzy approach	Advances in Sustainable Construction and Resource Management	Scopus
11	Dr. A. Suchith Reddy	Assessing interdependency among sustainable criteria and indicators for developing a building assessment tool	International Journal of Sustainable Engineering	Scopus
12	Dr. D. Abhigna	Comparative Study of Pedestrian Crossing Behaviour at Uncontrolled Urban Intersection and Midblock Locations, 698-706	Transportation Research Procedia	Scopus
13	Dr. B. Sumanth Kumar	A Study on Binder index - A new parameter to predict the strengths of GGBS and Fly ash Geopolymer Concretes (PP 23 - 30)	Indian Concrete Institute Journal	UGC
14	Dr. N. Gangadhara Reddy	Properties and Assessment of Applications of Red Mud (Bauxite Residue): Current Status and Research Needs. 12, 1185-1217.	Waste and Biomass Valorization, Springer	SCI
15	Dr. N. Gangadhara Reddy	Desiccation Cracks Mitigation Using Biomass Derived Carbon Produced from Aquatic Species in South China Sea	Waste and Biomass Valorization, Springer	SCI
16	Dr. N. Gangadhara Reddy	Strength Development of Geopolymer Composites made of Red Mud - Fly Ash as a Subgrade Material in Road Construction. 25 (1), 04020068 (p.10).	Journal of Hazardous, Toxic, and Radioactive Waste, ASCE	WoS
17	Dr. N. Gangadhara Reddy	Laboratory model tests on capillary barrier infiltration using active heated fiber optic method. 43(1), 147-155.	Chinese Journal of Geotechnical Engineering	SCI
18	Dr. N. Gangadhara Reddy	Modelling Contaminant Transport in Fly Ash-Bentonite Composite Landfill Liner: Mechanism of Different Types of Ions, 10, 11330 (p. 8).	Scientific Reports, Nature	SCI
19	Dr. N. Gangadhara Reddy	Evaluating the Suitability of Geomaterials-Amended Soil for Landfill Liner: A Comparative Study, 24(4), 04020052 (p.7).	Journal of Hazardous, Toxic, and Radioactive Waste, ASCE	WoS
20	Dr. N. Gangadhara Reddy	Potential of Citric Acid for Amendment of Extremely Alkaline Bauxite Residue: Effect on Geotechnical and Geoenvironmental Properties. 24(4), 04020047 (p.17).	Journal of Hazardous, Toxic, and Radioactive Waste, ASCE	WoS
21	Dr. N. Gangadhara Reddy	Hydrogeochemical Characterization, Groundwater Quality and Water Resource Management in Salem, Tamil Nadu, India	International Conference on Recent Developments in Sustainable Infrastructure (ICRDSI -2020)	Conference Proceedings
22	Dr. N. Gangadhara Reddy	Use of Polyacrylamide for Erosion and Fugitive Dust Control of Geomaterials - A Review	International Conference on Recent Developments in Sustainable Infrastructure (ICRDSI -2020)	Conference Proceedings
23	Dr. N. Gangadhara Reddy	Application of Biopolymers for Enhancing Engineering Properties of Problematic Soils and Industrial Wastes: A Review.	Online National Conference on Advances in Sustainable Construction Materials (ASCM 2020)	Conference Proceedings
24	Dr. M. B. Sushma	A Modified Motion Planning Algorithm for Horizontal Highway Alignment Development.	Computer-Aided Civil and Infrastructure Engineering.	SCI
25	Dr. M. B. Sushma	Implication of Repatriating Migrant Workers on COVID-19 Spread and Transportation Requirements.	Journal of Transportation Research Interdisciplinary Perspectives.	SCI
26	Dr. M. B. Sushma	An India-specific Compartmental Model for Covid-19: Projections and Intervention Strategies by Incorporating Geographical, Infrastructural and Response Heterogeneity	arXiv preprint arXiv:2007.14392	Scopus
27	Dr. M. B. Sushma	Exploration and Exploitation Based Ant Algorithm for Optimized Vertical Highway Alignment	Transportation Research Board (TRB) 99th Annual Meeting	Conference Proceedings
28	Dr. M. B. Sushma	Implication of Inter-State Movement of Migrant Workers during COVID 19 Lockdown using Modified SEIR Model	arXiv preprint	Scopus
29	Sri P. Teja Abhilash	A GIS Based Approach to assess ground water quality in Kurnool Dist.	Sustainable Water Resources Management	Scopus