AKRUTHI

Magazine

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DEPARTMENT OF CIVIL ENGINEERING

ADITYA ENGINEERING COLLEGE
APPROVED BY AICTE,NEW DELHI AND AFFILIATED TO JNTUK
ADB Road SURAMPALEM-533437,Near Kakinada,E.G.Dist.,ph:99498 76662
Recognized by UGC under the sections 2(f) and 12(B) of UGC act 1956

ABOUT CIVIL DEPT

The Department of Civil Engineering at Aditya transfers innovative applications to improve Civil Engineering practices which fulfil the requirements of the civil construction industry. To face the challenges in the field, the department associates itself in different consultancy activities like quality control, design, detailing, soil testing and concrete testing to the construction sites in the close vicinity. To shore up the transition of knowledge, eminent personnel from industry and academia are invited to deliver technical talks on emerging areas to keep the students abreast with the latest advancements. The department has state-of-the-art facilities, latest software like STAAD Pro, AUTOCAD, Revit Structures, Robot Structure analysis etc. and well-equipped laboratories with costly equipment such as Total Station, Universal Testing Machine, Tri-axle Shear Testing Machine, Kaplan turbine, Francis turbine, Pelton wheel testing rig, Compression testing machine, Ultrasonic pulse velocity equipment etc. The department offers unique internship opportunities to students in companies like L&T Construction, Reliance Industries Limited, OIL, Irrigation Department, Govt. of A.P., Soma Constructions, APCO Infra tech, Vizag Steel Plant etc.

Vision of the Department

To be a recognized center in Civil Engineering with values and innovation.

Mission of the Department

Mission 1:

Practice learner-centric quality teaching learning process abreast with changing industry needs and societal challenges

Mission 2:

Provide quality infrastructure towards academics, research and innovation

Mission 3:

Establish effective industry and institutional collaboration

Faculty Publications in International Journals/Conferences

Sl. No.	Authors	Title of the research paper	Name of the journal/conference/book chapter etc.	Year of publication
1	Sumit Choudhary Mukund	Sustainable Production of Concrete using Rice Husk Ash and Steel Fibers and Steel Fibers: Durability Properties	Journal of Critical Review	2022
2	P. Ravi Kishore	Sustainable Production of Concrete using Ceramic Tile Powder and Steel Fibers: Durability Properties	Journal of Critical Review	2022
3	Dr.G.Jaswanth	probabilistic models for reinforced concrete slabs subject to missile impact based on experimental and numerical outcomes	Journal of Critical Review	2022
4	Dr. S.Govindarajan	Experimental study on alkali resistant glass fibre reinforced concrete	Journal of Critical Review	2022
5	G. Krishna Kanth	Experimental study on Bamboo Reinforced Concrete	Journal of Critical Review	2022

6	P. Ravi Kishore	Valorization of ceramic waste and steel fibers in the production of concrete: a mechanical approach	Journal of Critical Review	2022
7	P.Urmila	Influence of Graphite Powder on Strength& Durability properties of Cement mortor	Journal of Critical Review	2022
8	K.P. Prajna Bharathi	Comparative Study of Partially Wrapped RC Beams at 9Different Spacings	Journal of Critical Review	2022
9	Dr.Sumit Choudhary Mukund	Sustainable Production of Concrete using Rice Husk Ash and Steel Fibers: Mechanical Parameters	Journal of Critical Review	2022
10	Dr. S.Govindarajan	Experimental and analytical study of basalt fibre reinforced concrete	Journal of Critical Review	2022

PLACEMENT DETAILS

S. No.	Roll Number	Name of the Student	Designation	Name of the company	Salary Package
1	19A95A0120	Pratyusha Manepalli	Trainee	Qspiders	1.20 LPA
2	18A91A0113	Gandham Venkatesh Prasad	Graduate Engineer Trainee	SDVVL	2.50 LPA
3	18A91A0118	Koduri Prasad	Graduate Engineer Trainee	SDVVL	2.00 LPA
4	18A91A0159	Badiganti Markandeya Maharshi	Graduate Engineer Trainee	SDVVL	2.20 LPA
5	18A91A0164	Chappa Sukendra	Graduate Engineer Trainee	SDVVL	1.80 LPA
6	18A91A0166	Davesh Rai	Graduate Engineer Trainee	SDVVL	2.50 LPA
7	18A91A0158	Baddi Bhupathi Raja Durga Prasad	Assistant System Engineeer - Trainee	TCS Ninja	3.36 LPA
8	18A91A0111	Degala Venkatesh	Site Engineer	Vishwanadh Avenues	1.80 LPA
9	18A91A0117	Kesavarapu Rama Krishna Surya Vamsi	Site Engineer	Vishwanadh Avenues	1.80 LPA
10	18A91A0119	Kola Karunakar Sai	Site Engineer	Vishwanadh Avenues	1.80 LPA

11	18A91A0139	Prathipati Hemanth	Site Engineer	Vishwanadh Avenues	1.80 LPA
12	18A91A0184	Marothi Leena	Site Engineer	Vishwanadh Avenues	1.80 LPA
13	19A95A0104	Chintalapudi Bhagya Lakshmi	Site Engineer	Vishwanadh Avenues	1.80 LPA
14	19A95A0109	Nalla Sairam	Site Engineer	Vishwanadh Avenues	1.80 LPA
15	19A95A0111	Pachipulusu Dinakar	Site Engineer	Vishwanadh Avenues	1.80 LPA
16	18A91A0114	Gubbala Bindu Priya	Project Engineer	Wipro	3.75 LPA
17	18A91A0122	Bhanu Prakash Korlepara	Project Engineer	Wipro	3.75 LPA
18	18A91A0125	Machana Devi Mahesh	Project Engineer	Wipro	3.75 LPA
19	18A91A0138	Penumala Likhitha	Project Engineer	Wipro	3.75 LPA
20	18A91A0151	Yarra Yamini	Project Engineer	Wipro	3.75 LPA
21	18A91A0167	Deepika Bantu	Project Engineer	Wipro	3.75 LPA

22	18A91A0191	Pampana Hem Prabhakar	Project Engineer	Wipro	3.75 LPA
23	18A91A0193	Potnuri Sai Divya	Project Engineer	Wipro	3.75 LPA
24	18A91A01A4	Jahnavi Sesha Sai Yallabandi	Project Engineer	Wipro	3.75 LPA
25	18A91A01A6	Dipesh Kumar Mandal	Project Engineer	Wipro	3.75 LPA
26	18A91A01A7	Anil Kumar Mandal	Project Engineer	Wipro	3.75 LPA
27	18A91A01A9	Aditya Kumar Tara	Project Engineer	Wipro	3.75 LPA
28	18A91A01B1	Bikash Singh Yadav	Project Engineer	Wipro	3.75 LPA
29	18A91A01B2	Irfan Ansari	Project Engineer	Wipro	3.75 LPA
30	19A95A0106	Venkata Naga Teja Dondapati	Project Engineer	Wipro	3.75 LPA
31	19A95A0108	Thirupathi Raidu Mathsa	Project Engineer	Wipro	3.75 LPA
32	19A95A0128	Tatavarthi V S R S Sai Kiran	Project Engineer	Wipro	3.75 LPA

33	18A91A0145	Shaik Mounuddin Haneef Mukthar	Business Development Trainee	Zelf Studie	6.00 LPA
34	18a91a0180	K.Jagadeesh Chandu	Business Development Trainee	Zelf Studie	6.00 LPA
35	19A95A0113	Swaroopa Rani Thorlapati	Business Development Trainee	Zelf Studie	6.00 LPA

ADITYA ENGINEERING COLLEGE

Congratulations

Zelf Studie

6.0 LPA

SK.K. HANEEFMUKTHAR
18A91A0145

K.J. CHANDU
18A91A0180

T. SWAROOPA RANI
19A95A0113

ADITYA ENGINEERING COLLEGE

Congratulations

3.36 LPA

TCS | TATA CONSULTANCY SERVICES

B.B. RAJA DURGA PRASAD
18A91A0158

ADITYA ENGINEERING COLLEGE

Congratulations

1.80 LPA

Vishwanadh Group

Avenues • Architects • Resorts • Marine
Beachfront • Entertainment • Agros • Trading

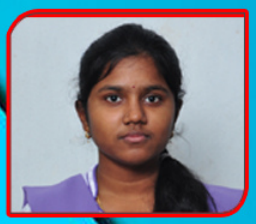
B. SAISRIDEVI
18A91A0102

CH. LOKESH
18A91A0109

CH. VIJAYA LAKSHMI
18A91A0110

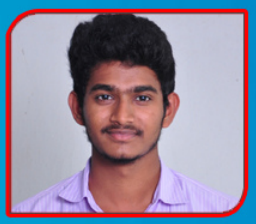
K. NOOKARAJU
18A91A0121

N. WINBABU
18A91A0133



K. SWATHI SRI DEVI
18A91A0146

KOMMANAMAN CHIANIRUDH
18A91A0175



K. AKHIL
18A91A0177

ADITYA ENGINEERING COLLEGE

Congratulations

1.2 LPA

Spiders

M. PRATYUSHA
19A95A0120

STUDENTS ACTIVITIES

Students Awards/Achievements

Sl. No.	Name of the students	Name of the event	Topic	Venue	Date	Award/Reward
1	Etti Tejaswi Gandi Yaswanth	IDEATHON 2022	Idea Presentation Competition	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022	1st WinneR
2	V Veera Venkata Durga Prasad	Vishwayojana Fiesta 2K22	Role of fly ash in construction	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022	1st Winner
3	Ankam Durgamba Manepalli Pratyusha	VISVOTSAV 2K22	Technical Quiz (Online)	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022	2nd Winner

STUDENTS PARTICIPATION IN VARIOUS EVENTS

S.No	Name of the student	Name of the event	Topic	Venue	Date
1.	Saladi Sai Krishna	VISVOTSAV 2K22	Geotechnical Characterization of Copper Slag towards Civil Engineering Constructions	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
2.	Pamarthi Venkata Naga Saibabu	VISVOTSAV 2K22		Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
3.	Mandarapu Sri Santosh	VISVOTSAV 2K22		Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
4.	Thoram Rajasri	VISVOTSAV 2K22	Strength and sorpitivity of geo polymer concrete	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
5.	Yadla Yagna Prasad	VISVOTSAV 2K22	Strength and sorpitivity of geo polymer concrete	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
6.	V Veera Venkata Durga Prasad	Vishwayojana Fiesta 2K22	Role of fly ash in construction	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
7.	Tiguti Durgambika	Vishwayojana Fiesta 2K22		Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022

8.	Chelluri Umasankar Swamy Anil	Vishwayojana Fiesta 2K22	Construction Challenge of Bridges in Hilly Area	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
9.	Simhadri Durga Prasad	Vishwayojana Fiesta 2K22		Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
10.	Kankanala Manohar	Vishwayojana Fiesta 2K22	Impact of Covid-19 on Civil Engineering	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
11.	Kola Suryadeep	Vishwayojana Fiesta 2K22		Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
12.	Vinnakot Yaswanth Reddy	Vishwayojana Fiesta 2K22	Use of recycled Waste Material in Road Construction	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
13.	Neelapu Phaninddra	Vishwayojana Fiesta 2K22		Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
14.	Golla Rudra Sai	IDEATHON 2022	Noise Control of Buildings	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022
15.	Batchu Srinu	IDEATHON 2022	Noise Control of Buildings	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022
16.	Nagulapalli J V V S S L Vigneswar	IDEATHON 2022	Noise Control of Buildings	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022
17.	Ankam Durgamba	VISVOTSAV 2K22	Technical Quiz(Online)	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022

18.	Manepalli Pratyusha	VISVOTSAV 2K22	Technical Quiz(Online)	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
19.	Bandi Sai Prasad	VISVOTSAV 2K22	Virtual Activity	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
20.	Dondapati Venkata Naga Teja	VISVOTSAV 2K22	Virtual Activity	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
21.	Yehoshuva Dasari	VISVOTSAV 2K22	Virtual Activity	Visvodaya Technical Academy, Andhra Pradesh	21st May 2022
22.	Kurakula Jagadeesh Chandu	Vishwayojana Fiesta 2K22	STRUQTA (Online)	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
23.	Sadhanala Gangadhar Sai Nagesh	Vishwayojana Fiesta 2K22	STRUQTA (Online)	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
24.	Mani Kranthi	Vishwayojana Fiesta 2K22	Techno connectz	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
25.	Kollati Satya Uday Kiran	Vishwayojana Fiesta 2K22	Techno connectz	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
26.	Ramavath Ravi Naik	Vishwayojana Fiesta 2K22	Techno Quiz (Online)	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022
27.	Kundrapu Harshavardhan	Vishwayojana Fiesta 2K22	Techno Quiz (Online)	Sanskrithi School of Engineering, Puttaparthi, Andhra Pradesh	6th - 7th May 2022

28.	Etti Tejaswi	IDEATHON 2022	Idea Presentation Competition	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022
29.	Gandi Yaswanth	IDEATHON 2022	Idea Presentation Competition	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022
30.	G Sesha Kanaka Siva Ganesh Saimanik	IDEATHON 2022	Idea Presentation Competition	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022
31.	Kotha Madhav Charan	IDEATHON 2022	Technical Quiz	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022
32.	Kukkala Chandrarjun	IDEATHON 2022	Technical Quiz	Bannari Amman Institute of Technology, Tamil Nadu	18th February 2022

Students publications in conferences

Sl.No	Project Batch Members		Project Title	Guide Name
	Regd. No	Name of the Student		
1	19A95A0109	Nalla Sairam	A comprehensive study on energy harvesting from roads	Guthula Swathi
	18A91A0139	Prathipati Hemanth		
	19A95A0106	Dondapati Venkata Naga Teja		
	18A91A0133	Nookatati Winbabu		
	18A91A0130	Nallam Prathyusha		
2	19A95A0114	Ankam Durgamba	A comparative analysis of roundabouts in Kakinada city	N.Anil Kumar
	19A95A0116	Golla Rudra Sai		
	18A91A0165	Dasam Naga Chakradhar		
	18A91A0189	Naraharisetti Satya Veerendra		
	18A91A01A2	Varri Shanmukha		

3	18A91A0192	Penumalla Lavanya	P. Urmila	Dr.B. Rama Mohan Reddy
	19A95A0126	Mohammed Sajid Ur Rehman		
	19A95A0125	Batchu Srinu		
	18A91A0155	Ajay Kumar Ray		
	18A91A0177	Koppu Akhil		
4	18A91A0191	Pampana Hem Prabhakar	Biopolymer treated sustainable soil blocks - an earthen construction material	Dr. S.Anandha Kumar
	18A91A0170	Garapati Bhuvana Sri		
	18A91A0175	Kommanamanchi Anirudh		
	18A91A0171	Gollapalli Harsha Vardhan		

STUDENTS PUBLICATIONS IN JOURNALS

Sl.No	Project Batch Members		Project Title	Guide Name
	Regd. No	Name of the Student		
1	19A95A0120	Manepalli Pratyusha	Effective replacement of cement with ceramic tile powder and addition of steel fibers	P. Ravi Kishore
	18A91A01B2	Irfan Ansari		
	18A91A01A7	Anil Kumar Mandal		
	18A91A0176	Konatham Akhil		
	18A91A0180	Kurakula Jagadeesh Chandu		
2	18A91A0167	Deepika Bantu	Influence of Graphite Powder on Strength& Durability properties of Cement mortor	P. Urmila
	19A95A0127	Narava Mohan		
	18A91A0164	Chappa Sukendra		
	18A91A0173	Jonnalagadda Dhanush Vikram		
	18A91A0172	Gorre Sandeep Reddy		

	18A91A01A4	Jahnavi Sesha Sai Yallabandi	Strengthening of RC beams using glass fiber reinforced polymer	K.P. Prajna Bharathi
	19A95A0118	Korupalli Satya Durga		
3	18A91A0160	Baligodugula Ajay Shankar		
	18A91A01A0	Undrasapu Teja		
	18A91A01A5	Yandra Pavan Sai Krishna		
	19A95A0121	Matta Hemanth	Usage of Rice Husk Ash and Steel fibers in the production of Concrete	Dr. Sumit Choudhary Mukund
	18A91A01B1	Bikash Singh Yadav		
4	18A91A0194	Puvvala Bhanu		
	18A91A0199	Thota Venkata Suryanarayana		

5	19A95A0115	Chilaka Ruha Rani	Experimental and analytical study of basalt fiber reinforced concrete	Dr. S. Govindarajan
	18A91A0158	Baddi Bhupathi Raja Durga Prasad		
	18A91A0163	Borra Kalki		
	18A91A01A6	Dipesh Kumar Mandal		
	18A91A0186	Nagulapalli J V V S S L Vigneswar		

FACULTY DEVELOPMENT PROGRAMME (FDP) – ORGANIZED

S. No.	Name of the FDP	Name of the faculty Coordinator	Dates/Duration	Resource Person Details	No. of Students
1	Scientific paper writing, journal selection and patent drafting.	Dr. S Pachaiappan	06-12-2021 to 11-12-2021 Days	Dr. Ch. Venkatesh, CVR College of Engineering, Hyderabad. Dr. Ch. Surya Prakash, K.L. University, Guntur.	68

CONFERENCES, \SEMINARSAND WORKSHOPS – ORGANIZED

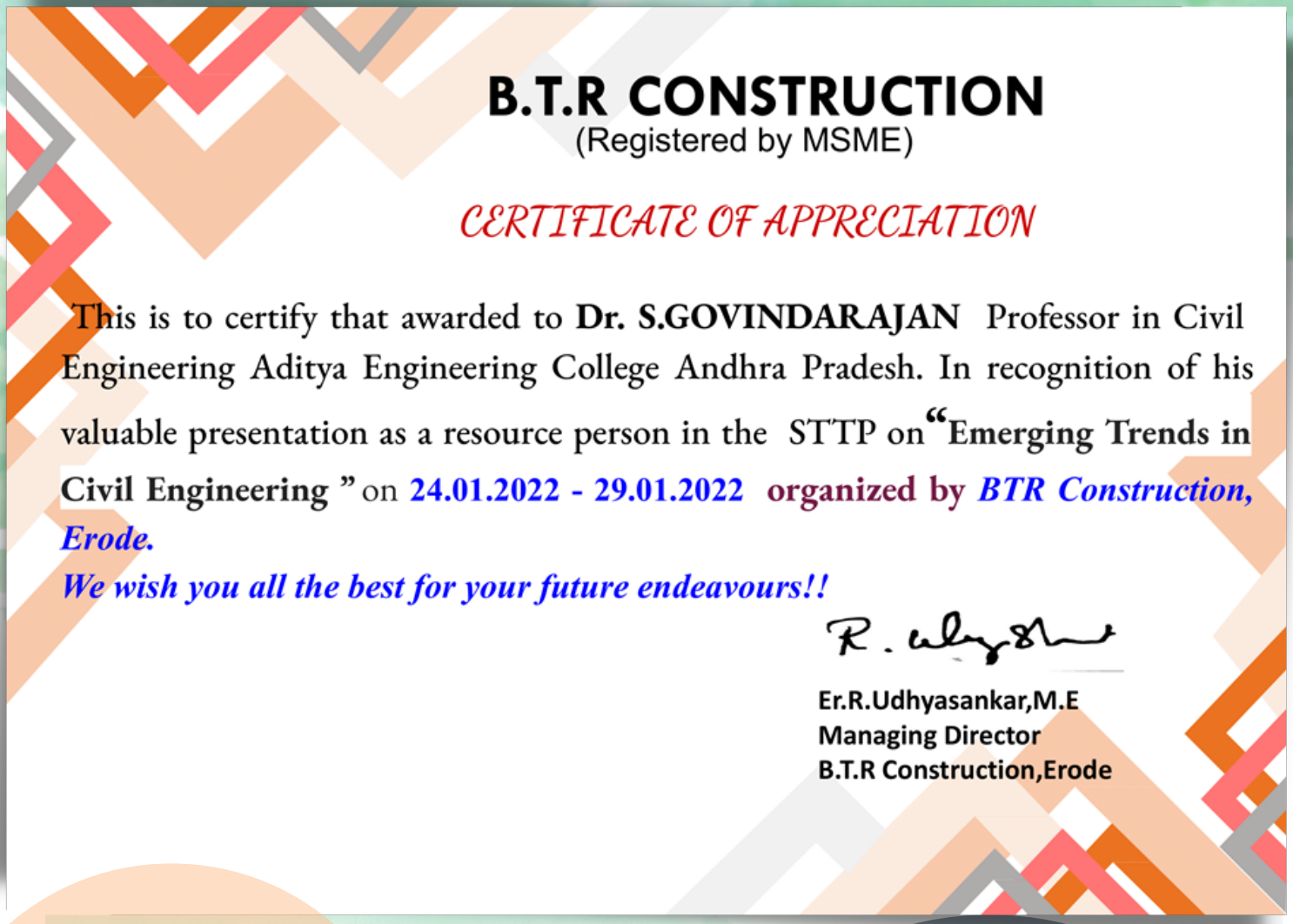
Sl. No.	Type of Event	Title of Event	Name of the Coordinator	Resource Person Details	Dates	No.of Students
1	Seminar	Research overview on geopolymer concrete technology	Goutham Valloju	Dr. Ashwin Raut, Associate professor, KL University, Vijayawada.	06-12-2021	26
2	Seminar	Applications of Membrane technology in waste water management	Goutham Valloju	Dr. R. Annadurai, Professor, Department of Civil Engineering, SRM University, Chennai.	19-01-2022	40
3	Workshop	Applications of Remote sensing and 'ArcGIS' in identification of potential zones for artificial recharge	Dr. S. Anandha Kumar	Dr. Ch. Kannam Naidu, Assistant professor, SIET, Amalapuram	21-02-2022 to 24-02-2022	35

SEMINARS AND WORKSHOPS – ATTENDED

S. No.	Name of the faculty	Name of the Event	Name of the organizer	Place/ Location	Dates
1	P. Ravi Kishore	Works hop	IIT Madras	Aditya Engg College, Surampalem	Dec 2021
2	S. Pachaiappan	Works hop	IIT Madras	Aditya Engg College, Surampalem	Dec 2021

INVITED LECTURES

Sl. No.	Name of the faculty	Name of the event	Name of the topic addressed/ delivered	Date	Invited Organization/ institute
1	Dr. S. Govindarajan	Short Term Course	Structural elements design using IS:456- 2000	25/01/2022	BTR Constructio, Madurai, Tamilnadu.



B.T.R CONSTRUCTION
(Registered by MSME)

CERTIFICATE OF APPRECIATION

This is to certify that awarded to **Dr. S.GOVINDARAJAN** Professor in Civil Engineering Aditya Engineering College Andhra Pradesh. In recognition of his valuable presentation as a resource person in the STTP on "**Emerging Trends in Civil Engineering** " on **24.01.2022 - 29.01.2022** organized by ***BTR Construction, Erode.***

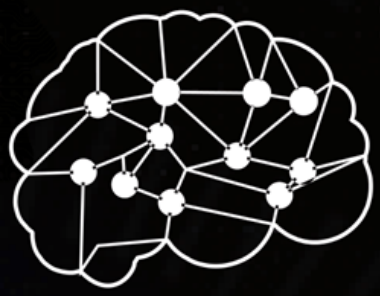
We wish you all the best for your future endeavours!!

Er.R.Udhyasankar,M.E
Managing Director
B.T.R Construction,Erode

INVITED LECTURES

Sl. No.	Name of the faculty	Name of the event	Name of the topic addressed/ delivered	Date	Invited Organization/ institute
1	Dr. S. Govindarajan	Short Term Course	Structural elements design using IS:456- 2000	25/01 /2022	BTR Constructio, Madurai, Tamilnadu.

Artificial Intelligence

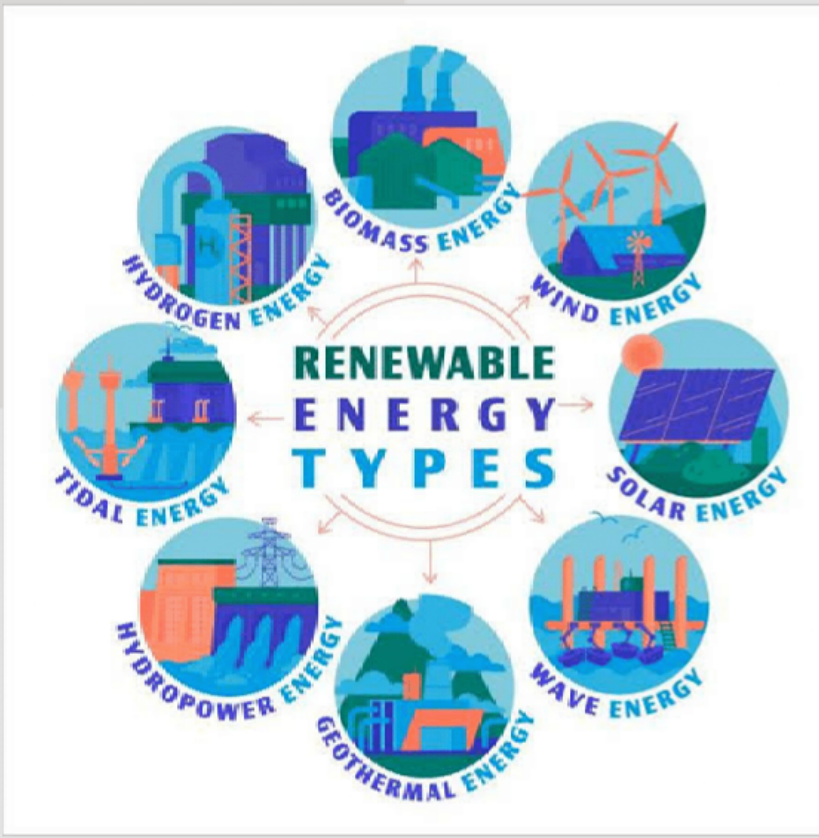


Today, the amount of data that is generated, by both humans and machines, far outpaces humans' ability to absorb, interpret, and make complex decisions based on that data. Artificial intelligence forms the basis for all computer learning and is the future of all complex decision making.Artificial intelligence (AI) is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. The applications of AI can be seen in everyday scenarios such as financial services fraud detection, retail purchase predictions, and online customer support interactions. More advanced AI engines are employed to monitor and detect fraudulent payment card transactions in real time. When a person initiates dialog on a webpage via chat (chatbot), the person is often interacting with a computer running specialized AI.Advancements in AI for applications like natural language processing (NLP) and computer vision (CV) are helping industries like financial services, healthcare, and automotive accelerate innovation, improve customer experience, and reduce costs. Gartner estimates that up to 70% of people will interact with conversational AI platforms on a daily basis by the year 2023. Artificial intelligence allows machines to model, and even improve upon, the capabilities of the human mind. From the development of self-driving cars to the proliferation of smart assistants like Siri and Alexa.

Nearly 86% of the mistakes can be prevented in the healthcare industry and AI will play a vital role in this.From driverless cars to voice automation in homes, artificial intelligence has progressed rapidly and is no longer just a concept from sci-fi movies and books. According to a research by scientists at the University of Oxford, Artificial Intelligence will be better than humans at translating languages by 2024, writing school essays by 2026, selling goods by 2031, write a bestselling book by 2049, and conducting surgeries by 2053. As a result, many tech companies across various industries are investing in artificially intelligent technologies.

Parimi Joshna Vinaya Teju

STUDENTS ARTICLES



Exploiting renewable energy sources
Picture showing different types of renewable energy

Growing concern over the world's ever-increasing energy needs and the prospect of rapidly dwindling reserves of oil, natural gas, and uranium fuel have prompted efforts to develop viable alternative energy sources. Gasoline engines and steam-turbine power plants that burn coal or natural gas emit substantial amounts of sulfur dioxide and nitrogen oxides into the atmosphere. When these gases combine with atmospheric water vapour, they form sulfuric acid and nitric acids, giving rise to highly acidic precipitation. The combustion of fossil fuels also releases carbon dioxide. The amount of this gas in the atmosphere has steadily risen as a result of the growing consumption of coal, oil, and natural gas.

Renewable energy creates more jobs for women than fossil fuels, According to the International Renewable Energy Agency (IRENA)'s 2020 Annual Review, 32 per cent of the global renewables workforce is female, compared to just 21 per cent in fossil fuel sectors.

More and more scientists believe that the atmospheric buildup of carbon dioxide (along with that of other industrial gases such as methane and chlorofluorocarbons) may induce a greenhouse effect, raising the surface temperature of the Earth by increasing the amount of heat trapped in the lower atmosphere. This condition could bring about climatic changes with serious repercussions for natural and ecosystems. (Acid rain and the

Many countries have initiated programs to develop renewable energy technologies that would enable them to reduce fossil-fuel consumption and problems. Technologies that are being actively pursued are those designed to make wider and more efficient use of the energy in sunlight, wind, moving water, and terrestrial heat (i.e., geothermal energy). The amount of energy in such renewable and virtually pollution-free sources is large in relation to world energy needs, yet at the present time only a small portion of it can be converted to electric power at reasonable cost.

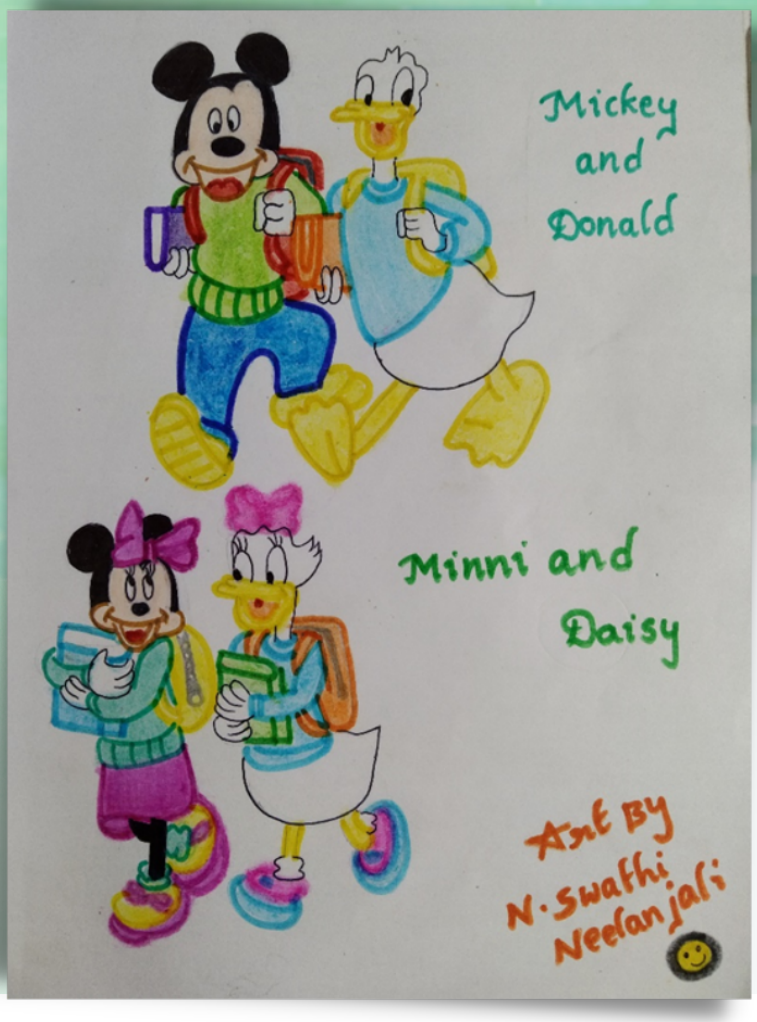
A variety of devices and systems has been created to better trap the energy in sunlight. Among the most efficient are photovoltaic systems that transform radiant energy from the Sun directly into electricity by means of silicon or gallium arsenide solar cells. Large arrays consisting of thousands of these semiconductor cells can function as central power stations. Other systems, which are still under development, are designed to concentrate solar radiation to generate electric power. These systems employ a number of different components, including flat-plate solar collectors to provide heating for commercial buildings.

Although wind is intermittent and diffuse contains tremendous amounts of energ Wind turbines have been developed convert this energy to electric power. T utilization of wind energy systems gr rapidly. Converting the energy in movi water to electricity has been a lon standing technology. Yet, hydroelect power plants are estimated to provide o less amount of the world's ener requirements. The technology involved simple enough: hydraulic turbines chan the energy of fast-flowing or falling wa into mechanical energy that drives pow generators, which produce electrici Hydroelectric power plants, howev generally require the building of cos dams. Factor that limits the increase hydroelectric power production is t scarcity of suitable sites for additio installations except in certain regions the world.

In certain coastal areas of the wo hydraulic turbine-generator units ha been used to harness the great amount energy in ocean tides.

DHEERAJ SARAKANAM

PENCILE ARTS



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