ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

DEPARTMENT OF CIVIL ENGINEERING

INERTIA 2K23

TECHNICAL MAGAZINE-2022-2023
Volume 15, Annual Issue

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DEPARTMENT OF CIVIL ENGINEERING

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ADITYA

Institute of Technology and Management

(An Autonomous Institution)

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ADITYA

Institute of Technology and Management

(An Autonomous Institution)

Department of Civil Engineering

Vision and Mission of the Institute

Vision

To evolve into a premier engineering institute in the country by continuously enhancing the range of our competencies, expanding the gamut of our activities and extending the frontiers of our operations.

Mission

Synergizing knowledge, technology and human resource, we impart the best quality education in Technology and Management. In the process, we make education more objective so that efficiency for employability increases on a continued basis.

Vision and Mission of the Department

Vision

To become a pioneer in the field of civil engineering by providing high quality education and research to serve the public consistently with competitive spirit professional ethics.

Mission

Provide quality knowledge and advance skills to the students in order to expertise theoretically and practically in the areas of civil engineering.

Improve the professional potentiality of the students and staff through educational programs to expand the knowledge in the field of civil engineering

Inculcate healthy competitive spirit towards the higher education and successful career in the field of civil engineering to serve the nation ethically.

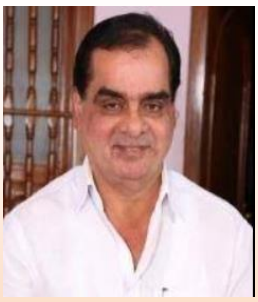
Provide students and faculty with opportunities to create, disseminate and apply knowledge by maintaining a state of the art research.

Chairman's Message

At AITAM, we are committed to excellence in everything we do. We strive to mould the students in balancing intellectual and practical skills to become leaders in all the fields of Technical know-how and Management. We have created the finest facilities for the students to make the most of their scholastic pursuits. We are closely aligned with the corporate world which ensures exchange of ideas and experiences that keep our curricula focused on current developments and challenges in the field of engineering. We are firmly committed to research and consulting activities to contribute to the development of the discipline of engineering. Our vitality lies in our spirit of innovation. Our strength lies in our pragmatic approach. Our success lies in our will to do.

Dr. K. Someswara Rao
CHAIRMAN

Secretary's Message



Aditya Institute of Technology and Management is founded to meet the increasing demand for competent engineering graduates. Within a short span of its inception, AITAM has grown to be a premier engineering college of its kind and has won laurels and kudos from the industry. The faculty and staff in AITAM are dedicated to providing first-class education that instills strong and potent basic knowledge for sound practice in science and engineering for the well-being of the society. The Institute offers curricula that nurtures creative thinking and prepares students for productive and rewarding careers. The Institute offers programmes that deepen learning experiences of our students and prepare them for successful careers as engineers.

Sri L.L. Naidu
SECRETARY

Director's Message

Engineering education at AITAM is indeed a rewarding intellectual experience. The Institute prepares the engineering professionals of tomorrow imbued with insight, imagination and ingenuity to flourish as successful engineers. Our programs are attuned to the needs of the changing times. The classrooms are ultra-modern; the library and labs are cutting-edge; and all the members of the faculty are workaholic professionals and masters in their fields. Not surprisingly, our students are recruited by such renowned organizations as HCL, Satyam, WIPRO, INFOSYS, TCS, Visual Soft, Innova-Solutions and InfoTech. The exceptional dedication of our students, faculty and staff, and our collaborations with Industry and other institutions ensure that the Institute is well-poised to create a unique niche in the horizons of engineering education.

Prof. V.V. Nageswara Rao
DIRECTOR

Principal's Message

It is only through knowledge that man attains immortality. Knowledge has to expand or grow to remain as knowledge. The road to excellence is toughest, roughest and steepest in the Universe. The world requires and honors only excellence. Available information has to be directed by wisdom and intelligence to create new knowledge. Promotion of creativity is the new role of education. It is only through creative thinking that the present and future problems can be addressed to find dynamic solutions. Technology should be used to help remove poverty from the world. In fact forty per cent of the world's poor are in India. Confidence leads to capacity. It is faith in oneself that produces miracles. Education at AITAM helps build character, strengthen the mind, expand the intellect and establish a culture of looking at problems in a new perspective. The student is put through rigorous training so that he can stand on his own feet after leaving the portals of the Institute.

Dr.A. S. SRINIVASA RAO
PRINCIPAL

HOD's Message

Welcome to the Department of Civil Engineering at AITAM, Tekkali. Our journey started in the year 2011. Over the past 6 years we have grown our competency and expertise in core Civil Engineering curriculum and research. Vision of the department is to become a pioneer in the field of civil engineering by providing high quality education and research to serve the public consistently with competitive spirit and professional ethics.

The primary focus of our curriculum is to impart technical know-how to students, improve their problem skills combined with innovative thoughts. The department is well equipped with state of the art laboratories for academics and research purpose. With funding from Technical Education Quality Improvement Program (TEQIP) and AICTE, special purpose lab equipment and software have been procured to support the research activities. Faculty members have excellent academic credentials possessing Doctorates and experienced staff from academics, research and core industry.

Dr. P. DINAKAR

HOD, CIVIL DEPARTMENT

Abstracts of B.Tech. Projects

S.No.	01
Name of the guide	Dr.H.Ramamohan
Name of the Student	1. K.NAGAHARSHANAND (20A55A0126) 2. A.SYAMALA (19A51A0101) 3. B.PREM SAI (20A55A0103) 4. G.SIVA RAMA KRISHNA PRASAD (19A51A0116) 5. M.HEMANTH KUMAR (19A51A0128)
Project Title	PHYSICO CHEMICAL ANALYSIS OF GROUND WATER USING WEIGHTED AVERAGE METHOD TO ESTABLISH THE WQI AT MADAPAM VILLAGE

Abstract: Groundwater is an important source for drinking water supply. Insufficient availability of surface water makes people dependent on ground water resources to fulfill their needs. Hence, calculation of water quality index (WQI) is directly related to the physical, chemical and bacteriological properties of water. WQI is a mathematical expression applied to transform large quantity of water quality data into a single number which indicates water quality level. The present study is intended to evaluate the suitability of groundwater quality at Madapam village for potable purpose. To establish this selected 6 sampling stations at the study site during the year 2022 – 2023. The parameters like pH, Electrical Conductivity, Total Dissolved Solids, Alkalinity**,** Total Hardness, Chloride, Free Chlorine, Sulfate, Fluoride, Nitrate, Manganese and Iron were analyzed to estimate the groundwater quality. The water quality index (WQI) has been applied to categorize the water quality viz: excellent, good, poor, etc. which is quite useful to infer the quality of water to the people and policy makers in the concerned area.

S.No.	02
Name of the guide	Dr. Sanjay Kumar Ray
Name of the Student	AMIR NABI KHAN 19A51A0103 B NITESH KUMAR 19A51A0106 MANTRI VISHNU 19A51A0124 MENDA KAVYA 19A51A0126 A ANIL SAI 20A55A0102)
Project Title	URBAN GROWTH MODELLING AND PREDICTION OF LAND USE LAND COVER CHANGE OVER SRIKAKULAM DISTRICT, INDIA USING CELLULAR AUTOMATA APPROACH AND TERRSET.

Abstract: The present study was carried out to identify urban growth modelling and prediction of land use land cover change over Srikakulam district, Andhra Pradesh, India. Srikakulam District is the extreme Northeastern District of Andhra Pradesh situated within the Geographic Coordinates of 18°-20’ and 19°- 10’ of Northern latitude and 83°-50’ and 84°-50’ of Eastern longitude. The district is spread over an area of 583700 Hectares. The present study also includes predicting the LULC map using the artificial neural network-based (ANN) cellular automata (CA) model and Terrset, using seven different driving parameters, like elevation, slope, aspect, distance to major roads, distance to water bodies, central building distance, and population. The LULC classification is performed considering five different classes, i.e., barren land, built up, agriculture, forest and water bodies. The prediction simulation was done for the year 2025 and 2030 using past and present classified images as a base image. The result of the prediction shows an increase in built-up area by 13.19% as compared to year 2022; vegetation area has increased 5.80%, water bodies and barren land decreased by 0.41% and 10.57%, respectively.

S.No.	03
Name of the guide	Dr.P.Dinakar
Name of the Student	L.THANUJA (19A51A0123) P.NARASHIMA (19A51A0133) JITENDRA RAY (19A51A0118) R.SATEESH (19A51A0138) G.NIRANJANA RAO (20A55A0122)
Project Title	EXPERIMENTAL STUDY ON THE PROPERTIES OF SELF COMPACTING CONCRETE BY CHANGING THE ADMIXTURES

Abstract: Concrete is one of the oldest and most common construction materials in the world mainly due to its availability, low cost and durability. Due to advancing technology the most revolutionary development in concrete technology was self-compacting concrete. In general the use of admixtures improved the performance of self-compacting concrete in fresh state and also used to the modifying viscosity admixtures of the setting time. This project is mainly focuses on the experimental study on the properties of self-compacting concrete by changing the admixtures and an experimental investigation on strength aspects like compressive strength in the hardened state of self-compacting concrete containing different admixtures and workability tests in plastic stage by adding different admixtures (slump,L-box,U-box,T50 slump flow test ,J-Ring test) are carried out.

S.No.	04
Name of the guide	Mr.B.Ganesh
Name of the Student	G. BHAVANA (18A51A0114) M. SURYANARAYANA (19A55A0116) R. SURENDRA (19A55A0123) B. JASWANTH (19A55A0102) D. VASKAR RAO (18A51A0111)
Project Title	EXPERIMENTAL STUDY ON IMPROVING THE BEARING CAPACITY OF FOUNDATION SOIL WITH INCLUSION OF GEOCOIRS

Abstract:
Expansive soils which are high swelling and shrinkage undergoes volume changes and cracking pose complicated problems for Foundations. So it is in need for improving the load-bearing capacity of foundation soil by mechanical stabilization using Geo Coir's, Geo synthetic, Geo grids. These are the existing techniques to improve the bearing capacity of soil. Geo coir's can act as reinforcement to the soil to improve the bearing capacity, tensile strength of the soil in an economic way. In this project load vs settlement analysis studies are conducted on the possible usage of Geo coir's(GSM 700) in soil by varying three consistencies (i.e. Consistency index 1.33,1.2,1.06) with 18%,22%,26% of the water to the weight of the soil for laying down the Geo coir's in layers of 1,2,3 at positions of L/2,L/3,L/4 . Load versus settlement graphs are analysed.

S.No.	05
Name of the guide	Dr.V.Sowjanya Vani
Name of the Student	KISAN KUMAR MANDAL (19A51A0121) APARNA SAH (19A51A0104) PRANAV VERMA (19A51A0134) G. ARUN KUMAR (19A51A0117) B. SRINIVASA RAO (20A55A0104)
Project Title	EXPERIMENTAL STUDY ON LIGHT TRANSMISSION CONCRETE BY USING PLASTIC OPTICAL FIBER

Abstract: Transparent concrete is a concrete based building material with light-Transmissive properties due to embedded light optical elements usually Optical fibers .The Light is conducted through the stone from one end to the other. Therefore the fibers have to go through the whole object. Transparent concrete is also known as the translucent concrete and light transmitting concrete because of its properties. It is used in fine architecture as a facade material and for cladding of interior walls etc. In this project the optical fiber size will vary between 2μm and 2mm.The specimen casted will contain 95% of concrete and 5%of plastic optical fibers. The concrete considered is cement mortar which contain fine aggregate and cement. The fibers are disturbed in shortest direction to increase the transparency of concrete. The main purpose of this project is to make a transparent concrete by using plastic optical fiber. This work is to done to use sunlight as a light source to reduce the power consumption of illumination and to use the optical fiber to sense the stress of structures and also use this concrete as an architectural purpose for good aesthetical view of the building.

S.No.	06
Name of the guide	Dr. H.Ramamohan
Name of the Student	K. Likhitha (20A55A0125) Dhirajkumar Thakur (19A51A0110) B. Rajasekhar (20A55A0109) CH. Sunanda (19A51A0108) B. Balu (20A55A0105)
Project Title	DESIGN OF INTEGRATED SEWAGE TREATMENT PLANT TO AN EDUCATIONAL INSTITUTE

Abstract: Sewage treatment is the process of removing contaminants from wastewater and household sewage, both runoff (effluents) and domestic waste which creates harms for general public. It includes physical, chemical, and biological processes to remove physical, chemical and biological contaminants. Its objective is to produce a treated effluent and a solid waste or sludge suitable for discharge or reuse back into the environment. To bring up this a study was carried out on waste water characterization followed by the design of sewage treatment plant at AITAM.The Aditya Institute of Technology and Management,Tekkali is one of the prominent educational institute is growing fast with an academic versatility and also there will be rise in population along with infrastructural works. So there is a basic need of construction of a Sewage Treatment Plant (STP) with a view of sufficient capacity to treat the sewage. Its objective is to produce an environmentally safe fluid waste stream (treated effluent) and a solid waste (treated sludge) suitable for disposal or reuse (usually a form of fertilizer). To address this the samplings of the domestic waste from the campus have been done at different times of the day to have an average data of the measured parameters. The data is considered for the design of suitable sewage treatment plant for the campus needs.

S.No.	07
Name of the guide	Mr.B.Shanmuka Rao
Name of the Student	A.SAI KRISHNA (20A55A0101) KAMLESH K. THAKUR (19A51A0120) D.SAI KRISHNA (20A55A0115) CH.NAGESWARA RAO (20A55A0111) P.HEMA SUNDAR (20A55A0123)
Project Title	EXPERIMENTAL STUDY ON EFFECT OF AERATION ON LIQUID SEPTIC EFFLUENTS

Abstract: In recent years the waste water ministerial regulations have led to a constant ascends in the purification performance demanded of waste water treatment plants. Because of this, the number of waste water treatment plants has been maturing, and technical complexity has also been growing. In order to hold the connected rising costs of capital expenditure and operation within bounds, sagacious process technology solutions have to be found. Besides having a deeper understanding of the individual processes, it is indispensable to consider the entire waste water treatment plant as a whole. Most treatment plants consist of a mechanical and biological waste water purification, sludge treatment and gas utilization. In three of these four stages, namely in the preliminary and secondary clarification of the waste water and in the thickening and dewatering of the sludge, the processes for solids/liquids separation are of crucial importance. The efficiency of the solids/liquids separation is mainly influenced by the properties of the sludge. The existing treatment facilities for organic wastewater are designed to remove toxic contamination levels including a variety of metal traces and organic matters. Studies revealed that the carbonaceous and nitrogenous loadings are much responsible for inefficient treatment yield procured from the biological treatment part, mostly as activated sludge process. The present study was aimed to evaluate the treatment efficiency of a self-designed bench scale model as a novel modification to the conventional ASP. The design characteristics accomplished for the developed bench scale Anoxic-aerobic ASP (as A-O) was also presented. An overview of trends observed for the pollution indicators such as COD, TSS, Sulphide, and DO are discussed in a detailed manner. Moreover, the study particularly emphasized at the Insitu investigation of wastewater shock loadings to the novel A-O, and its sustainability. On the basis of experimental trends, this seems to be a lucrative treatment for the tannery wastewater

S.No.	08
Name of the guide	Mrs.V.Divyasri
Name of the Student	CH.PRABHAKAR (20A55A0110) DIWAKAR CHAUDHARY (19A51A0111) SHYAMALA RAO (19A51A0102) SANDHYA (19A51A0130) B.HIMA ADITYA SRIRAM (19A51A0107)
Project Title	EXPERIMENTAL STUDY ON SLURRY INFILTRATED STAINLESS STEEL FIBROUS CONCRETE(SIFCON)

Abstract: SIFCON is produced by a process in which Stainless stain fibers are put into an empty mould, after which the Stainless stain fiber mass is infiltrated by a cement slurry under vibration. This Slurry is performed with M40 trail mix design, 0.45 water-cement ratio. The mechanical tests like compressive strength, flexural strength and splitting tensile test were done and measured the strength of casted concrete. For getting of our aim we used 150*150*150 mm and Diameter = 15cm and Length = 30cm 1000*150*150 mm moulds for cubes, beams and cylinders.Slurry Infiltrated Stainless Steel Fibrous Concrete (SIFCON) is a high volume Fiber Reinforced Concrete (FRC) with significant improvement in the properties such as strength and toughness. Fiber reinforced concrete has a wide variety of structural application, in which the strength depends on the amount of fibers present in the concrete.

S.No.	09
Name of the guide	Mr. G.D.R.NAIDU
Name of the Student	P.CHARN RAJ (19A51A0136) G.PURNA CHANDRA REDDY (20A55A0120) G.TARUN (20A55A0123) G.HEMA SUNDHAR (20A55A0121)
Project Title	AN EXPERIMENTAL STUDY ONPARTIAL REPLACEMENT OF FINE AGGREGATE WITH WASTE GLASS POWDER IN SELF COMPACTING CONCRETE USING STEEL FIBER

Abstract: Self-compacting concrete is a new kind of high performance concrete in improving the product quality and efficiency of building industry because self-compacting concrete does not require vibration for placing and compaction. It is able to flow under its own weight. Steel fibers acts as a bridge to retard the cracks propagation, and improve several characteristics and properties of concrete. An investigation was performed to compare the properties of ordinary conventional concrete (OCC) and self-compacting concrete (SCC) with steel fiber. The mix design arrived is for M25 grade. Fiber content was varied by 0.5%, 1%, 1.5% and 2.0%. Fresh properties including slump flow, V funnel, L-Box are carried out for self-compacting concrete. Hardened properties like compressive strength, flexural strength are carried out for conventional concrete and compared with self-compacting Concrete. Results showed significant improvement in strength.

S.No.	10
Name of the guide	Mr.B.Govinda Rajulu
Name of the Student	N.RAMYASRI (19A51A0129) D.MANOJ KUMAR(20A55A0114) D.JAGGUNAIDU(19A51A0109) D.DINESH (20A55A0116
Project Title	DESIGN AND FABRICATION OF AUTOMATIC OPENING OF SLUICE GATE

Abstract : Minor irrigation tanks located in higher altitude areas in the monsoon seasons receive heavy rainfall that unevenly occurs or results in undergoing precipitation as a runoff of the water forwarded to downstream side. In this connection, the water level is increasing in the water tank. The surplus water reaches the maximum level of the tank. The embankment may be eroded as its causes to breach the bund. At that time by applying Siphonic action of the water is discharged & goes downstream side the water will be released by Siphonic action, it can be discharged through a sluice, dam gates open by the Siphonic action prevents the breaching of the embankments. In the hydraulic structures of water conservancy project, sluice is one of the most important part, which undertakes the tasks of flood control, sand flushing and water inflow. The water outlet can be closed or opened completely or partially according to the need. In order to better play the role of and water conservancy projects, the protection of hydraulic structures. Setting up automatic opening system at these outlets can flexibly implement the automatic control of all kinds of sluices. Combined with the needs of local , the sluice flow detection and statistics, sluice gate individual/group control functions are constructed. In this way, multiple sluices can be controlled at one time. Through real-time monitoring of the gate status and taking data modeling, the opening size of the gate can be calculated to realize the automatic control of each gate. Through the practical test results meet the design requirements.

S.No.	11
Name of the guide	Dr. SANJAY KUMAR RAY
Name of the Student	CH. DHANALAKSHMI (20A55A0112) M.P. LIKHITA (19A51A0125) B. BALASAI (20A55A0107) B. TEJESWARA RAO (20A55A0108)
Project Title	FLOOD RISK INDEX ANALYSIS IN A RIVER BASIN BY USING MULTI-CRITERIA DECISION ANALYSIS AND GIS

Abstract: Flood is one of the most destructive natural disasters of climate change. And they have 5 destroyed people's lives as well as social and environmental assets. Flooding is becoming more severe 6 and frequent as a result of climate change and an increase in human-induced land-use changes, which 7 puts pressure on river channels and causes changes in river morphology. Flood risk occurrence is a 8 combination of natural and anthropogenic factors, which calls for a better understanding of its spatial 9 extent. The basic flood-producing factors in this study were derived from soil, slope, elevation, 10 drainage-density, Runoff, permeability and land use land cover data. The collected data were processed 11 using the ArcGIS environment and the analytic hierarchy method to produce a flood danger map. As a 12 result, flood prediction, early warning and management practices could be implemented on a regular 13 and sustainable basis. Decision-makers need to estimate how susceptible various elements are to the 14 impact of flooding. This is called 'flood vulnerability'. Maps that show the spatial distribution and 15 quantify the vulnerability of at-risk elements facilitate decision-making. The basic flood-producing 16 factors in this study were derived from population density, crop production, Road river intersection 17 data.

S.No.	12
Name of the guide	Mr.G.ANIL KUMAR
Name of the Student	KalivarapuNavya (19A51A0119) GaruguRaghupathi (19A51A0113) Chintada Sai Chand (20A55A0113) ArikaAbhinav (19A51A0105) PailaPavan Kumar (19A51A0132)
Project Title	AN EXPERIMENTAL STUDY ON PALM FIBER REINFORCEMENT IN EXPANSIVE SOILS

Abstract: A large part of Central India and a portion of South India are covered with Expansive soils. These soils have high swelling and low strength; hence, there is need for improvement of these properties. Palm is a natural biodegradable material abundantly available in some parts of South and coastal regions of India. Stabilization is the process of modifying the properties of a soil to improve its engineering performance and used it for a variety of engineering works. The results of comprehensive experimental investigations using CBR test, tri-axial shear tests to quantify the improvement of strength, swelling and CBR test, tri-axial of black cotton soil reinforced with palm fiber in a random manner. The mechanisms of improvement in strength, behavior of Expansive soils due to the inclusion of palm fibers. This facilitates the use of combination of Expansive soil and palm fibers for sustainable development purposes. that the stabilization of soil using 10mm, 15mm, 20mm, 25mm pieces of palm as stabilizer improves the strength characteristics of the soil so that it becomes usable as one of the reinforcing material for the construction of roadways, parking areas, site development projects, airports and many other situations where sub-soils are not suitable for construction. In the present study palm fiber are used from sizes of 10mm to 25mm with various length with different contents like 0.2%, 0.4%, & 0.6% by weight of the soil. After inclusion of fibers in soil to conduct test like CBR, Tri-axial¸Split tensile strength, from this test better result are obtained at 0.4% fiber content with length of 1.5 Cm fiber length.

S.No.	13
Name of the guide	Dr .H .Rammohan
Name of the Student	1. K.NAGAHARSHANAND (20A55A0126) 2. A.SYAMALA (19A51A0101) 3. B.PREM SAI (20A55A0103) 4. G.SIVA RAMA KRISHNA PRASAD (19A51A0116) 5. M.HEMANTH KUMAR (19A51A0128
Project Title	PHYSICO CHEMICAL ANALYSIS OF GROUND WATER USING WEIGHTED AVERAGE METHOD TO ESTABLISH THE WQI AT MADAPAM VILLAGE

Abstract: Groundwater is an important source for drinking water supply. Insufficient availability of surface water makes people dependent on ground water resources to fulfill their needs. Hence, calculation of water quality index (WQI) is directly related to the physical, chemical and bacteriological properties of water. WQI is a mathematical expression applied to transform large quantity of water quality data into a single number which indicates water quality level. The present study is intended to evaluate the suitability of groundwater quality at Madapam village for potable purpose. To establish this selected 6 sampling stations at the study site during the year 2022 – 2023. The parameters like pH, Electrical Conductivity, Total Dissolved Solids, Alkalinity**,** Total Hardness, Chloride, Free Chlorine, Sulfate, Fluoride, Nitrate, Manganese and Iron were analyzed to estimate the groundwater quality. The water quality index (WQI) has been applied to categorize the water quality viz: excellent, good, poor, etc. which is quite useful to infer the quality of water to the people and policy makers in the concerned area.

S.No.	14
Name of the guide	Sri Krupasindhu Biswal
Name of the Student	TEJA CHALLA (19A51A0153) MEESALA RAMBABU (20A55A0133) V. TEJESWARARAO (20A55A0149) S. JAYAPRAKASH (19A51A0170) PULLETIKURTY MYTREYA (20A55A0143)
Project Title	STUDY ON SUBGRADE STABILIZATION WITH LIME AND STONE POWDER IN FLEXIBLE PAVEMENT

Abstract: The performance of flexible pavement is determined by the functions of the component layers, particularly the subgrade. Subgrade is the compacted layer of soil provide the lateral support to the pavement. Our approach is to improve the properties of soil is with addition of admixtures like lime and stone dust with soil. Soil stabilization is one of the most suitable alternatives which are widely used in pavement construction. Soil stabilization and soil treatment gives an innovative solution to improve the engineering properties of soil by improving the bearing capacity, durability of weak soil and other characteristics as per requirement. In this study lime and stone powder has been selected as a stabilizer. The soil is tested in the laboratory by reinforcing it with different percentages of lime and stone dust, namely 5%, 10%, 15%, 20%, 25%, 30%. Atterberg limit and compaction test were carried out on both unmodified and modified soil. California bearing ratio (CBR) test was performed to determine the strength properties of the soil, lime, stone powder mixtures.

S.No.	15
Name of the guide	Mr.G.Gowrisankara Rao
Name of the Student	L.VINEETHA 20A55A0130 P. RAJASEKHAR 20A55A0140 V. NITEESH 19A51A0154 P. APPANNA 19A51A0158 M. SAI 20A55A0134
Project Title	ANALYSIS AND DESIGNING OF A RESIDENTIAL APARTMENT (G+5 FLOORS)

Abstract: Structural planning and interior design is an art and science of designing with economy, elegance and durable structure. The entire process of structural planning and designing is not only requires imagination and conceptual thinking but also requires knowledge of structural engineering besides knowledge of practical aspects such as relevant design codes and example experiences. The layout of the proposed G+5 residential building is located in Srikakulam is proposed in the based on a total built up area is 252'5"x94'6" but according to the plan. The ground floor of the building will be used as parking while the remaining 5 floors will be divided into 50 apartments each having. Every floor is divided into 10units of an area of 1765sq.ft. Each apartment is of 3BHK configuration. With the orientation of north and south facing. All the drafting was done using AutoCAD. Also these drawings made on AutoCAD also served as a base for transfer of the structure for analysis and design into STAAD Pro. In order to design them, it is important to obtain the plan of the particular building with positioning for the good ventilation. Interior designing is done to achieve specifications required and aesthetical appearance to know the better combination of colours and other 7 elements we designed in before using sketch up and twin motion.

S.No.	16
Name of the guide	Dr. M. SURESH
Name of the Student	L. DILEEP 20A55A0129 M. BANU PRASAD 19A51A0159 HIKMAT SHAHI 19A51A0174 K. PARDHA SARADHI 19A51A0167 K. PRAKASH 20A55A0127
Project Title	A NUMERICAL STUDY ON COMPUTATION OF SEDIMENT DISCHARGE OF A SPILLWAY CHANNEL USING CFD

Abstract: The spillway of the channel exhibits complex hydrodynamic characteristics with different levels of interdependent processes occurring simultaneously. On the other hand, sedimentation improves the river ecological condition and helps for the planform stability. The upstream zones of spillway of river channel are generally carried the sediment loads and this makes important to study influence on channel turbulence. This study addresses the following question through numerical modeling. The computational model such as FLOW3D will predict the flow structures in a spillway with straight channel. And how much the correlation between turbulence features of numerical conditions will vary. The numerical model showed that the location of the diversion, the size and the alignment of the diversion channel are critical parameters affecting the sediment–water ratio captured by the diversion. The analysis shows that locating the intake from spillway increases the sediment load of 690 mg/l. Further, the analysis shows that a 10m channel with a favorable condition to the flow structures in the channel results to middle cross-section.

S.No.	17
Name of the guide	Sri B.Ganesh
Name of the Student	RAVADA DANTI VIDYASAGAR(19A51A0139) P.VAMSI(20A55A0138) S.AKHIL(19A51A0144) S.JAGADEESH (19A51A0142
Project Title	A STUDY ON GEO COIR REINFORCED SOIL FOR IMPROVING THE BEARING CAPACITY OF SOIL

Abstract: The construction of any structure in poor soil condition is a difficult task for a civil engineer. Structure on the ground with adequate bearing capacity is one of the essential requirements for the stability of a structure. The properties of weak soil can be improved by inclusion and confinement by reinforcement. It can overcome the inadequate bearing capacity and excessive settlement problems of shallow foundations due to soft soil conditions. In this research, the ultimate bearing capacity of geo coir reinforced soil was determined by using both experimental methods and The effect of inclusion and confinement by geo coir's material in the soil was investigated. The soil used in this study was clay obtained from the Vamsadhara River left main cannel near Polavaram (Tekkali). The geo coir's was employed as a soil reinforcement material which was manufactured by the Aroor Coir Mats &Mattings Co-Private Society Limited, Kerela, India. The trial set-up comprises a reaction frame, a mild steel tank, a hydraulic cylinder, a power pack, an electrical panel, and a model footing. The experiments were conducted in a Mild Steel tank of 900mm height and 590mm dia. A 10kg tamping rod was used to compact the soil, and the vertical load was applied using a hydraulic cylinder of 1000 Ton capacity. The experiments were carried on with and without reinforcement of geo coir in layers of 1,2,3at l/2,l/3,l/4. The ultimate bearing capacity of soil for various configurations of geo coir was determined by plotting the load settlement curves for each set of tests. This study shows that the effect of geo coir's reinforcement in the soil is determined mainly by its placement in the soil. From the experimental test results of load settlement curves, well-defined ultimate load intensity was observed, and the soil was failed in general shear failure. In unreinforced soil, the ultimate bearing capacity is very low when compared to the ultimate bearing capacity of soil with reinforcement. The geo coir's in the soil reduces the settlement and increases the load bearing capacity of soil

S.No.	18
Name of the guide	Mr. M.Sai Babu
Name of the Student	A.SIRISHA (19A51A0147) K. VASANTHA KUMAR (20A55A0150) RAJU JHA (19A51A0168) A.VINAY KUMAR (20A55A0152) V.SAI KULADEEP (19A51A0156
Project Title	A STUDY ON TERNARY BLENDED CONCRETE BY PARTIAL REPLACEMENT OF CEMENT WITH SUGARCANE BAGASSE ASH AND FLY ASH
Abstract: Sugarcane Bagasse Ash (SCBA) is a byproduct from industrial waste bagasse and can be utilized as a cement substitute in the production of structural concrete. Fly ash is a byproduct of thermal power plants. The main objective of this study is to determine the mechanical properties of ternary blended concrete developed through the partial replacement of cement with fly ash (10%) and sugarcane bagasse ash (SCBA) in various quantities, i.e., 10%, 20%, 30%, 40%, and 50%. Nowadays, ternary blended concrete is achieving popularity by overcoming the disadvantages of binary blended concrete. The hardened concrete tests were destructive in nature which includes compressive strength and split tensile strength. The mechanical properties of Ternary blended concrete are also compared with normal concrete mix (M30). From the results it is concluded that the cement is replaced by 10% fly ash and 10% SCBA showed better result. Up to 10% SCBA in concrete can be considered as the optimum replacement level with the addition of 10% fly ash by the weight of cement.	

S.No.	19
Name of the guide	Sri B.Shanmukha Rao
Name of the Student	V. TARAKA NEHRU (19A51A0155) P. SWETHA (20A55A0142) P. PAWAN KUMAR (20A55A0141)
Project Title	EXPERIMENTAL INVESTIGATION ON REPLACEMRNT OF CEMENT WITH GROUNDED GLASS POWDER
Abstract: The temporary land fill of dumping waste glass is not providing a friendly environment, because waste glass particles are non-biodegradable. Furthermore, the chemical structure and pozzolanic characteristics of waste glass powder are inspiring for using this waste in cement. In this study glass powder was used as partial replacement for cement and five different ratio of waste glass powder utilized concrete production 0%, 10%, 15%, 20% and 25% to examine the combined effect of different ratios of (WGP) on concrete performance. Study summarized that compressive and split tensile strengths are increased at 20% replacement while water permeability is reducing.	

S.No.	20
Name of the guide	Mr. R.Chandra Sekhar
Name of the Student	T. BHARGAVA SAI (19A51A0149) BICKEY KUMAR PASWAN (19A51A0173) S. UGANDHARA RAO (20A55A0146) V. BALA SAI (19A51A0163) T. SHANMUKHA SAI SRINIVAS (19A51A0151)
Project Title	EFFECT OF NATURAL GEO-TEXTILES ON SUBGRADE STRENGTH

Abstract: Weak subgrade can have a range of negative effects on the performance and durability of infrastructure and structures built on top of it. A weak subgrade is a layer of soil or other material that has a low load-bearing capacity and is unable to support the weight of the structures or infrastructure built on it. Expansive soil is soil that contains minerals, such as smectite clay minerals, that have the ability to expand and contract with changes in moisture content. Geo-textiles can be an effective solution for mitigating the negative effects of weak subgrade by improving its strength, stability, and durability. Use of geo-textile as reinforcing elements to strengthen the ground in order to work on very soft and weak ground in the construction of asphalted or unpaved vehicle roads systems. Using jute and coir geo-textiles as planar reinforcement, Conducting CBR tests by Inclusion of jute geo-textile at different heights (h/2, h/4, 3h/4) to find the optimum height. Once after finding the optimum height, calculation of subgrade strength with different grades of coir geo-textiles (400 GSM, 500 GSM, 600 GSM, 700 GSM, 900 GSM). The results of these tests can be used to determine the most effective grade of coir geo-textile for the specific subgrade conditions and requirements**.**

S.No.	21
Name of the guide	Sri S.Ramlal
Name of the Student	P.ESWAR KUMAR (20A55A0139) K.KARTHIK (20A55A0128) S.SAMITH YADAV (20A55A0145) Y.HARIPRASAD (19A51A0160)
Project Title	CHARACTERIZATION OF SEWAGE AND DESIGN OF SEWAGE TREATMENT PLANT FOR AN EDUCATIONAL INSTITUTION

Abstract: The Aditya Institute of Technology and Management is one of the most important educational institute in the state of Andhra Pradesh with large number of people residing in its campus consisting of number of laboratories of various departments, residential units, academic blocks and number of hostels. A study on domestic waste water characterization has been performed followed by the design of sewage treatment plant. The present study involves the analysis of pH value, total solids, total suspended solids, hardness, acidity, alkalinity, chlorides, chlorine, BOD and DO. A sewage treatment plant is quite necessary to receive the domestic and commercial waste and removes the materials which causes harm for general public. Its objective is to produce an environmentally safe fluid waste stream (treated effluent) and a solid waste (treated sludge) suitable for disposal or reuse (usually a form of fertilizer). The samplings of the domestic waste from hostel have been done in different times of the day to have an average data of the measured parameters. The average values of pH, turbidity, acidity, chloride, residual chlorine, hardness, total solids, BOD, DO, alkalinity, total iron content.

Faculty Publications

S.No.	Academic Year	SCOPUS Journals	SCI Journals	UGC Journals	Peer Reviewed Journals	Total Journals
1	2022-2023	01	02	07	01	11

Title	Experimental Study on the Properties of Self-Compacting Concrete with Ground Granulated Blast Furnace Slag and Micro Silica
Author	Dr.P.Dinakar
Journal	International Journal of Creative Research Thoughts
Abstract	Compacting of concrete is one of the major concepts in civil construction in day-to-day life. The main factors effecting due to improper compacting concrete causes leakages, corrosion which finally leads disintegration of the structure to encounter this conflict we prefer good compacting as also compaction plays prominent role in any civil constructions. based on availability resources and type of construction different methods in compaction is preferred. So based on some critical areas and places where human and machine involvement is restricted in those areas we can go prefer for Self-compacting concrete. This is what my thesis completely talks about the process and requirements that necessary to make the study successful.

Title	AN EXPERIMENTAL STUDY ON STEEL FIBRE REINFORCED RUBBER CONCRETE
Author	G. Durga Rama Naidu
Journal	International Journal of Creative Research Thoughts
Abstract	Accumulation of discarded scrap tires are non-biodegradable and have been a major concern. Even after a long period of land fill treatment, unmanaged waste tire poses environmental and health risk though fire hazard. Therefore, utilization of rubber from these scrap tires for the production of building materials in construction industry would help to preserve the natural resources and also maintain ecological balance. So, rubber used as replacement of aggregates with using fibers. Fiber reinforced concrete containing rubber particles have increased levels of toughness in comparison with conventional concrete. This experimental investigation focused on the material properties of fiber reinforced rubber concrete. Rubber particles were used at various concentrations to partially replacement with coarse aggregate 0, 5, 10, 15&20% with the addition of 0.85% steel fiber. This investigation includes an evaluation of standard fresh and hardens concrete properties. Results show that the fiber reinforcement counteracts the negative effects of using rubber particles to replace traditional aggregates.

Title	Quantitative Analysis of Groundwater in Kaviti Mandal –A Renal Failure Zone of Srikakulam, A.P., India
Author	Dr.H,Ramamohan
Journal	International Journal of Environmental Protection
Abstract	Chronic renal failure problem is the current fearful situation in Uddanam, a northeastern coastal region in the Indian state of Andhra Pradesh, Srikakulam district. These pathetic situations have touched the hearts of many researchers to explore the various factors related to chronic kidney disease (CKD). This paper describes the main cause of chronic kidney disease in this region. Majority of the people are using groundwater as their potable source. Survey reports collected from experienced local people and medical experts articulated that drinking water is the primary factor for renal failure. This study mainly focused on groundwater quality to diagnose contaminated elements in the water used for drinking purposes and its effect on residents of this belt. The in-situ and ex-situ analysis of water concentrated on physico-chemical parameters and trace elements and the results are discussed in detail.

Title	COMPARATIVE STUDY OVER THE STATIC LOADS & DYNAMIC LOADS IN THE DESIGN OF MULTISTORY BUILDING USING STAAD PRO
Author	G. Gowri Sankara Rao
Journal	International Journal of Creative Research Thoughts
Abstract	To compete in the ever-expanding competent market, a structural engineer must save time. ETABS software was developed in order to assess and build vertical high-rise structures in front of this. Extended Three-dimensional Analysis of Building Software is known as ETABS. Skyscrapers, concrete and steel structures, as well as low- and high-rise buildings, are commonly analyzed using ETABS. The present project deals with a comparative study using ETABS software on the wind analysis of g+10 and g+15 regular and irregular vertical high-rise structures subject to different wind gusts. In this study total, ETABS V20 is used to develop and analyses of 24 building models for wind loads. The wind analysis is performed at different heights, such as 35.2 m and 51.2 m, with velocities of 33, 39, 44, 47, 50, and 55 m/s. The comparison of the plan configuration also shows how measures like storey displacement, storey drift, storey shear, and overturning moment response interact. Identifying the most economic regular and irregular structure in a prone zone is the aim of this research.

Title	A COMPARATIVE STUDY USING ETABS SOFTWARE ON THE WIND ANALYSIS OF G+10 AND G+15 REGULAR AND IRREGULAR VERTICAL HIGH-RISE STRUCTURES SUBJECT TO DIFFERENT WIND GUSTS
Author	G. Gowri Sankara Rao
Journal	International Research Journal of Engineering and Technology
Abstract	To compete in the ever-expanding competent market, a structural engineer must save time. ETABS software was developed in order to assess and build vertical high-rise structures in front of this. Extended Three-dimensional Analysis of Building Software is known as ETABS. Skyscrapers, concrete and steel structures, as well as low- and high-rise buildings, are commonly analyzed using ETABS. The present project deals with a comparative study using ETABS software on the wind analysis of g+10 and g+15 regular and irregular vertical high-rise structures subject to different wind gusts. In this study total, ETABS V20 is used to develop and analyses of 24 building models for wind loads. The wind analysis is performed at different heights, such as 35.2 m and 51.2 m, with velocities of 33, 39, 44, 47, 50, and 55 m/s. The comparison of the plan configuration also shows how measures like storey displacement, storey drift, storey shear, and overturning moment response interact. Identifying the most economic regular and irregular structure in a prone zone is the aim of this research.

Title	**EARTHQUAKE ANALYSIS OF MULTI-STOREYED RESIDENTIAL BUILDINGS BY EQUIVALENT STATIC METHOD AND RESPONSE SPECTRUM METHOD AND COMPARATIVE STUDY BETWEEN THEM**
Author	**G. Gowri Sankara Rao**
Journal	**International Journal of Creative Research Thoughts**
Abstract	When a powerful, damaging earthquake strikes, it primarily affects the structures that weren't sufficiently well designed assessed as well as having insufficient strength to withstand it. Must need to learn about seismic analysis in order to develop and assess earthquake-resistant structure in order to assure safety against seismic force brought on by earthquake. The techniques used in structure for the earthquake analysis are Equivalent Static Analysis and Response Spectrum Analysis. The G+10 story residential building in zone V is analyzed by STADD PRO software. The primary goal of this thesis is to investigate seismic structure analysis for static and dynamic analysis in a special moment resistant frame and it's effective in withstand earthquake loads. Construction of buildings is major concern, as per the recent Gorkha Earthquake, which happened on April 25, 2015 in Nepal. The analysis of the building is therefore centred on enhancing the seismic capacity through suitable configuration as well as proper planning and detailing of structural parts and the selection of building site is necessary.

Title	EXPERIMENTAL INVESTIGATION OF MECHANICAL PROPERTIES OF CONCRETE M20 AND M25 USING RICE HUSK ASH AND WASTE GRANITE POWDER
Author	G. Gowri Sankara Rao
Journal	International Journal of Creative Research Thoughts
Abstract	Rice husk is an important by-product from the milling process of paddy rice, with a huge amount being produced worldwide each year and Granite powder [GP] is generated from granite cutting factories. This study presents the findings from the experimental work that was made to be evaluate the of rice husk ash to be utilised as the partial replacement for cement in the concrete grade of M20 and M25 at 28days with and without of rice husk ash. Granite powder is then replaced in the mixes with different percentages as 0% ,10%,20%,30%,40% and 50%. The compressive strength, split tensile strength are taken after 28 days the tests are conducted. By the experiment results, the mixes containing 25 % RHA and 30% of concrete in terms of compressivestrength and mixes containing 25 % RHA replacement and40 % granite powder replacement is suitable Split Tensile strength. These findings demonstrate that rice husk ash and granite powder can be partially substituted for sand and cement.

Title	MODEL FLEXIBLE PAVEMENT DESIGN ON REINFORCED EXPANSIVE SOIL SUBGRADE
Author	Badana Govinda Rajulu ,Dr. Pedapenki Dinakar ,Surapu Ramlal
Journal	International Research journal of Management Science and Technology
Abstract	Expansive soil represents a well-known category of problematic soil from civil engineering point of view. The design of foundation on black cotton soil (expansive soil) has always been a difficult task for the engineers. For any structure, the foundation is very important and it has to strong, to support the entire structure. The structure constructed on the black cotton soil, gives cracks without any warning. They exhibit large volumetric changes (shrinkage & swelling behavior) if moisture content changed and also problems on cracking and compressibility. Due to rapid growth of urbanization and industrialization, minimization of industrial waste is serious problem in present days. To encounter this innovative and on traditional research on waste utilization is gaining importance now days. In previous so many researchers was done studies on stabilization of soil by means of with similar materials such as cement, olive, bitumen, RHA(Rice Husk Ash),different organic wastes from agricultural lands and different industrial wastes are utilizing as a stabilizing material in geotechnical engineering has been recommended from environmental point of view. In the recent trends follow utilization of plastic wastes, fibers (Recron, steel, glass, natural and polypropylene) and geosynthetics as a reinforcing substance for enhancement of soil properties like CBR, UCS, bearing capacity etc... . In this research mostly concentrated on design of flexible pavement thickness as per the unreinforced and reinforced (reinforcement varying according to 0.5%, 1%, 2%, 3% etc...) Soil sub grades. After that compare the thicknesses of pavements as per the CBRs of different sub grade conditions.

Title	COMPARTIVE STUDY OF CONCRETE STRENGTHS OF M25 & M30 BY PARTIAL REPLACEMENT OF CEMENT AND COARSE AGGREGATES BY USING SILICA FUME AND E-WASTE
Author	Badana Govinda Rajulu ,Dr. Pedapenki Dinakar
Journal	Industrial Engineering Journal
Abstract	Now a day, construction industry is looking forward for the eco-friendly environmental aspect .In general the ordinary Portland cement and hard broken metals are as course aggregate are used for maximum civil engineering structures. Silica fume is a non-metallic and non-hazardous waste of industrial product. It is suitable for concrete mix and improves property of concrete i.e., compressive strength. E-waste disposal is a typical task faced in many regions across the globe. This waste utilization is sustainable solution to the environmental problem and use of waste materials reduce the cost of the concrete in the production of house building environment. In this project conduct comparative study of concrete strengths by partial replacement of cement by silica fume (5% to 15%) and replacement of course aggregates by Ewaste with a percentage of 5% - 20% in M25 & M30 grade of concretes.

Title	IDENTIFYING THE GROUNDWATER POTENTIAL ZONES IN JAMSHOLAGHAT SUB-BASIN BY CONSIDERING GIS AND MULTI-CRITERIA DECISION ANALYSIS
Author	Dr.S K Ray
Journal	International Journal of Environmental Science and Technology
Abstract	Groundwater resource is a crucial asset that makes a considerable contribution to the overall annual water resources toward industrial, domestic and agriculture purposes. However, overexploitation has resulted in severe reductions in groundwater supply. Evaluation of the possibility of groundwater recharge area is quite useful in order to conserve the groundwater resources. In this research, fourteen thematic maps (i.e., Lithology, Slope, Land use and Land cover, Drainage Density, Rainfall, Lineament Density, Distance from river, Hydrological Soil Group, Geomorphology, Topographic Wetness Index, Profile Curvature, Topographic Position Index, Plan Curvature and Roughness) undergo multicollinearity check followed by overlaying all of the thematic maps in ArcGIS software by considering ranks assigned to each thematic map using Analytical Hierarchy Process in order to develop the Groundwater potential zone map. The present research area was divided into four zones according to the Groundwater potential zone map, i.e., very high, high, moderate and low groundwater potential zone consisting of 22%, 45%, 26% and 7% of Jamsholaghat sub-basin, respectively. Most of the eastern part of the study area was found highly suitable for groundwater potential zones. This was due to favorable conditions such as lithology (laterite and quartz), geomorphology (flood plain/water bodies), slope (very gentle/gentle), high/moderate rainfall of the present research area. Nevertheless, the present study advises the adoption of sustainable aquifer recharge methods to enhance the groundwater resources of the deficit regions. These methods include rainwater harvesting and irrigation methods like micro as well as drip irrigation and sprinkler.

Title	LABORATORY INVESTIGATION ON FLOW STRUCTURE AND TURBULENT CHARACTERISTICS IN LOW SINUOUS COMPOUND CHANNELS WITH VEGETATED FLOODPLAINS
Author	Dr. Suresh Modalavalasa
Journal	Journal of Hydrology
Abstract	Groundwater resource is a crucial asset that makes a considerable contribution to the overall annual water resources toward industrial, domestic and agriculture purposes. However, overexploitation has resulted in severe reductions in groundwater supply. Evaluation of the possibility of groundwater recharge area is quite useful in order to conserve the groundwater resources. In this research, fourteen thematic maps (i.e., Lithology, Slope, Land use and Land cover, Drainage Density, Rainfall, Lineament Density, Distance from river, Hydrological Soil Group, Geomorphology, Topographic Wetness Index, Profile Curvature, Topographic Position Index, Plan Curvature and Roughness) undergo multicollinearity check followed by overlaying all of the thematic maps in ArcGIS software by considering ranks assigned to each thematic map using Analytical Hierarchy Process in order to develop the Groundwater potential zone map. The present research area was divided into four zones according to the Groundwater potential zone map, i.e., very high, high, moderate and low groundwater potential zone consisting of 22%, 45%, 26% and 7% of Jamsholaghat sub-basin, respectively. Most of the eastern part of the study area was found highly suitable for groundwater potential zones. This was due to favorable conditions such as lithology (laterite and quartz), geomorphology (flood plain/water bodies), slope (very gentle/gentle), high/moderate rainfall of the present research area. Nevertheless, the present study advises the adoption of sustainable aquifer recharge methods to enhance the groundwater resources of the deficit regions. These methods include rainwater harvesting and irrigation methods like micro as well as drip irrigation and sprinkler.

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