ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

DEPARTMENT OF CIVIL ENGINEERING

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DEPARTMENT OF CIVIL ENGINEERING

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ADITYA

Institute of Technology and Management

(An Autonomous Institution)

Tekkali-532 201, Srikakulam Dist., AP
Tel: 0845-245666, 245266, 92466 57908
Email: info@adityatekkali.edu.in

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.

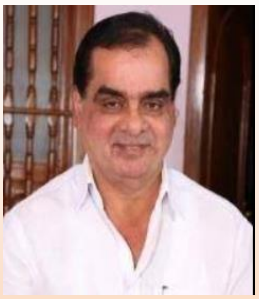
Provide students and faculty with opportunities to create, disseminate and apply knowledge by maintaining a state of the art research.

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.G.PRASANNA KUMAR
Name of the Student	T. SIREESHA (20A51A0143) P. CHINTU (20A51A0135) G. ANANTH KUMAR (20A51A0117) L. SUMANTH (20A51A0127) G. SIVASAI (20A51A0116) V. TEJASWARARAO (20A51A0146)
Project Title	EFFECT OF NANO SILICA ON STRENGTH PROPERTIES OF M30 GRADE CONCRETE WITH FLY ASH AND ARTIFICIAL SAND

Abstract: Concrete is a structural material consisting of a hard, chemically inert particulate substance, known as aggregate (usually sand and gravel), that is bonded together by cement and water. Concrete is used widely in all the construction activities and so resulted in scarcity for raw materials of concrete for future development. The scarcity of concrete is balanced by utilization of different alternatives as raw materials. The commonly used alternatives from the previous studies are fly ash, GGBS, Metakaolin, micro silica for cement. Due to the high demand of concrete material, search for substitutes are carried out not only for cement but also for fine and coarse aggregates too. Hence in order to develop a new concrete with improved properties, cement is replaced with fly ash and fine aggregate is replaced with artificial sand. And also nano material, nano silica is used in concrete along with the alternatives of raw materials for obtaining concrete with high strength and durability parameters. M30 grade concrete is considered in the present study. Cement is replaced with 30% of fly ash and fine aggregate is replaced with artificial sand at 0%,25%,50%,75%and 100%. The optimum content of artificial sand is obtained at 75 % replacement of fine aggregate from the values of compressive strength carried out at 3,7,14 and 28 days curing periods. Powdered form of nano silica is added in the percentages of 0.5, 1 and 1.5 % by weight of cement for determining the optimum concrete mix and strength studies are carried out. The mechanical properties of concrete such as compressive strength and split tensile strength are evaluated at 3,7,14 and 28 days for the optimum concrete mixes. Also Rebound Hammer Test is performed on the optimum concrete mixes at 28 days curing.

S.No.	02
Name of the guide	Sri B.HARISH
Name of the Student	N. ROHITH (20A51A0130) N. SAI JYOSHNA (20A51A0131) P. UDAY CHANDRA (20A51A0136) N. SUREKHA (21A55A0115)
Project Title	INVESTIGATION OF RANDOM INCLUSION OF BAMBOO FIBER ON EXPANSIVE SOIL AND ITS EFFECT CBR VALUE

Abstract: Soil stabilization involves enhancing the physical properties of soil by incorporating chemicals to boost its strength and durability. Methods such as chemical stabilization, bitumen stabilization, lime stabilization, cement stabilization, and innovative techniques like using geotextiles and geosynthetic fibers are employed for this purpose. Each method offers unique benefits depending on the specific requirements of the project. In this Present study, bamboo fibers are utilized as a geosynthetic material for soil stabilization. The addition of bamboo fibers to the soil leads to an increase in the CBR (California Bearing Ratio) values and a reduction in pavement layer thickness. Bamboo fibers are chosen for their ready availability, environmental friendliness, and cost-effectiveness as a geosynthetic material. The soil stabilization approach using bamboo fibers also results in lower overall construction costs compared to conventional methods. Through limited laboratory research, it was found that incorporating 0.5 and 1 percent (0.5cm and 1cm) bamboo fiber can substantially improve the properties of expansive soil, including its liquid limit, MDD (Maximum Dry Density), OMC (Optimum Moisture Content), and CBR value. This suggests utilizing bamboo fiber could be a promising and efficient method for enhancing soil characteristics in construction projects. The CBR value of soil increased as the percentage and size of fiber increases. The maximum CBR achieved by 66% when 1% of 1cm bamboo fiber blended with soil.

S.No.	03
Name of the guide	Sri.G.D.R.NAIDU
Name of the Student	CH.RAVI KUMAR (20A51A0109) D.SAMPATH DALINAIDU (20A51A0111) L.SEKHAR (20A51A0126) S.SAIKUMAR CHOWDHARY (20A51A0142) T.HAVISH (21A51A0117) V.NAGA KUSUMA (21A51A0119)
Project Title	A COMPARATIVE STUDY ON STRENGTH CHARACTERISTICS OF REINFORCED COLUMN AND FIBER REINFORCED COLUMN OF DIFFERENT L/D RATIOS

Abstract: The construction industry has witnessed continuous advancements in materials and techniques to enhance the structural performance of buildings. This study focuses on comparing the structural behavior of columns made with fiber-reinforced concrete (FRC) against reinforced concrete (RC) columns. The study is to evaluate and understand the influence of fibers on the mechanical properties and overall performance of structural elements. The methodology involves experimental testing and numerical simulations to assess the compression strength capabilities of both types of columns under loading frame. Here steel is considered to investigate their impact on the columns performance.

S.No.	04
Name of the guide	Mrs.V.DIVYASRI
Name of the Student	B. SAICHARAN(20A51A0104) DURGA RAO(20A51A0120) KIRAN KUMAR(20A51A0123) K. GEETA SUMANTH(20A51A0125) Y. SAI TEJA(20A51A0149) P. VIMALA(21A55A0109)
Project Title	A STUDY ON REHABILITATION OF SHORT COLUMNS BY USING GROUTING TECHNIQUE

Abstract: Columns is a crucial components in various structures, providing vertical support and stability. In this context rehabilitation is defined as intervention in an operation system component for the purpose of arresting structural damage so that the system can be returned to full operational status without replacement of the rehabilitation component. Assessing the effect of grouting on the restoration of structural integrity and improvement of overall performance is the main goal of this study. In this study of research of rehabilitation of short columns to fill the cracks by grouting technique materials are used such as sodium silicate and epoxy resin to comparing strength of short columns based on economical purpose. The goal of the comparison investigation is to offer insightful information about whether epoxy resin and sodium silicate are suitable for grouting rehabilitation applications on short columns. In this research paper, epoxy and sodium silicate is used for rehabilitation of short columns on addition of these two the strength of the column is increased compared to normal columns.

S.No.	05
Name of the guide	Dr.SANJAY KUMAR RAY
Name of the Student	G. TEJA SRI VARDHAN NAIDU (20A51A0113) G. PRADEEP KUMAR (20A51A0114) P. HIMASRI (20A51A0134) A. DUNDU PRASAD (21A55A0112) R. NAGAMANI (21A55A0114) P. TARUN KUMAR (21A55A0116)
Project Title	A MORPHOMETRIC ANALYSIS FOR SUB–WATERSHED PRIORITIZATION OF VAMSADHARA RIVER BASIN USING AHP-TOPSIS METHOD AND GIS

Abstract: The Vamsadhara River Basin, situated in Eastern India, is a vital geographical region contain diverse ecosystems and communities. This abstract explores the basin's hydrology, ecology, biodiversity, and human activities. Geographical information system (GIS) and remote sensing (RS) techniques can estimate the morphometric features and LULC analysis of a catchment. A total of nine sub-watersheds (SWs) are created from the watershed (SW 1 to SW 9) followed by assigning the weights to each input parameters by considering Analytical Hierarchy Process (AHP). Then, ranks are assigned to each subwatershed using Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). Based on the ranking sub-watersheds are prioritized. At the end, LULC analysis are carried out in order to prioritize the sub-watershed. The prioritization of sub-watershed for Vamsadhara River Basin are carried out in order to achieve the sustainable watershed management. According to TOPSIS , Ranks are assigned to sub-watersheds i.e. SW2, SW5, SW3 are high level, SW8, SW9, SW4 are moderate level and SW7, SW6, SW1 are low level. Regarding Land Use and Land Cover (LULC) Ranks are assigned to sub-watersheds i.e. SW6, SW4, SW1 are high level SW2, SW7, SW3 are moderate level and SW8, SW5, SW9 are low level.

S.No.	06
Name of the guide	Sri.B.GANESH
Name of the Student	S .VIJAYA LAKSHMI (20A51A0137) K. JYOTHI PRASANNA (21A55A0102) K. MOHAN RAO (20A51A0121) I . SURESH (20A51A0118) G. YASHWANT (20A51A0147)
Project Title	ANALYSIS AND PREDICTION OF SHORELINE CHANGES IN SRIKAKULAM DISTRICT COASTAL OF ANDHRA PRADESH USING ARCGIS

Abstract: Coastal zones are facing shoreline changes with time because accretion and erosion of sediments occur due to tidal patterns. Shoreline is an imaginary line that coincide with the interface of water and land. Shoreline is the boundary between land and sea keep changing its position continuously due to dynamic environmental conditions. ArcGIS is used for monitoring, generated information, analysis since 1982.In the study, analyzing the shoreline changes, coastal erosion and accretion of Srikakulam district between 1993 and 2023 from LANDSAT data using ArcGIS software. In this work validate the past data to predict the shoreline of the 2034 and evaluate the soil erosion and accretion.

S.No.	07
Name of the guide	Dr. H. RAMAMOHAN
Name of the Student	D. PRIYANKA (20A51A0112) N. ESWARAMMA (20A51A0129) B. LAVANYA (21A55A0106) I. LITHIN KUMAR (20A51A0119) B. MOHAN KRISHNA (20A51A0102) U. ABHIRAM (20A51A0145)
Project Title	INTEGRAL ASSESSMENT OF SURFACE WATER QUALITY ON THE RIVER VAMSADHARA

Abstract: Surface waters play a very crucial role for different developmental activities including domestic consumption. Water quality is utmost concern while such waters are using as a source for potable purposes. Rivers are a vital resource for humans and other life. They supply fresh drinking water to people across the world and are also home to bio-diversity as well as other economic development. At present due to industrialization and urbanization rivers are heavily loaded with different physical, chemical and bacteriological contaminants. Hence, constant and periodical assessment of water quality should be done to determine the pollutants load present in the surface waters. To address this issue and to find out the quality of river water, the present study is intended to perform the assessment of water quality on the parameter's temperature, pH, TDS, DO, Ca+, Mg+, Cl-, No3-, So4-, Fe+, its suitability for drinking and irrigation purposes. Later tested the behaviour of the datasets using machine learning on the river Vamsadhara. In the current scenario, facilities are available for testing the water samples by bringing it to the water authorities. But the process is time consuming as it usually takes several weeks for the reports to be received. This causes dissatisfaction to the users. The proposed system aims to provide the solution to the same, by allowing users to monitor the water quality from a given sample of water and predicts whether the water is contaminated or not.

S.No.	08
Name of the guide	Mrs.V.DIVYASRI
Name of the Student	A. HARIKRISHNA (20A51A0101) G. SHIVANI (20A51A0115) S.SAI BHAGAVATH (20A51A0140) J.GAYATRI (21A55A0110) Y.TARUN (21A55A0113)
Project Title	A STUDY ON REHABILITATION OF CRACK REPAIRS OF SHORT COLUMNS BY STITCHING METHOD WITH EPOXY RESIN

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 spliting tensile test were done and measured the strength of casted concrete. For getting of our aim we used 150*150*150mm 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. B.SHANMUKHA RAO
Name of the Student	B.Hemalatha (20A51A0106) S.Saikumar (20A51A0138) P.Sailaxmi (20A51A0133) CH.Jayaram (20A51A0108) M.Chandrashekhar (21A55A0107)
Project Title	ANALYSIS AND DESIGN OF G+10 RESIDENTIAL BUILDING FOR STATIC AND DYNAMIC LOADS BY USING ETABS

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	Sri M.SAI BABU
Name of the Student	N.RAMYASRI (19A51A0129) D.MANOJ KUMAR(20A55A0114) D.JAGGUNAIDU(19A51A0109) D.DINESH (20A55A0116 **)**
Project Title	SEISMIC ANALYSIS OF RCC BUILDING WITH AND WITHOUT SHEAR WALL

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	Sri G.ANIL KUMAR
Name of the Student	P. KRANTHI (21A55A0104) A. SAI (21A55A0103) L. NITHISH KUMAR (21A55A0108) B. SYAMA SUNDAR RAO (20A51A0105) K. HEMANTHA KUMAR (18A55A0116) M. LOKESWARA RAO (18A55A0138)
Project Title	EXPERIMENTAL STUDY OF SOIL SHRINKAGE CHARACTERISTICS EVOLUTION IN VARIOUS CONDITIONS USING IMAGE ANALYSIS TECHNIQUE

Abstract: The performance of clay soils can affect desiccation cracking in engineering. Expansive soil behavior during desiccation affects mechanical properties, permeability, and erosion susceptibility. Engineers and researchers study this behavior to predict soil performance and develop mitigation strategies for drying conditions. Applications like canal liners, dam cores, and compacted clay barriers for waste containment. To study soil crack evolution, laboratory tests with wetting-drying cycles are conducted and digital photography captures the process. ImageJ software aids in image processing. Factors like sample thickness, natural fiber percentage, and moisture content influence crack characteristics such as surface cracks, shrinkage, crack density factor(CDF), and crack intensity factor(CIF).

S.No.	12
Name of the guide	Dr.M.SURESH
Name of the Student	M. SURYANARAYANA (21A55A0122) L. BHARGAVI (20A51A0175) V. DURGA RAO (20A51A0192)
Project Title	INVESTIGATION ON 3D VELOCITY PATTERNS OF VAMSADHARA RIVER BY USING CFD

Abstract: This study aims to evaluate the Ecosystem health, water quality, and turbulence of the river aspects of water in the context of irrigation and agricultural practices. The typical cross-sections of the Vamsadhara River illustrate erosions and sediment mixing are observed from Google Earth data and collected samples. The sampling process involves collecting water samples at specific coordinates, particularly at meandering points from Bhyri to the confluence of the Bay of Bengal at Kalingapatnam village. Using Computational fluid dynamics model to understand the 3D velocity patterns of river by giving boundary and mesh conditions as inputs. The study involved simulating the flow velocities at various cross-sections (SP1 - SP7) along a river. Specifically, this study focuses on streamwise velocities (U) SP7, there was a notable 44.44% decrease in streamwise velocity compared to SP6. Overall, at the final sampling point (SP7), the streamwise velocity magnitude decreased by 61.54% compared to the initial sampling point (SP1). Remarkably, our findings indicate that streamwise velocities tend to be higher at the inner bank of the river compared to the outer bank. These observations offer valuable insights into the flow hydrodynamics within river channels. Furthermore, the observations about that secondary velocities are higher at SP6 and SP7. Understanding these dynamics is crucial for comprehending the behavior of flow in meandering rivers and can have consequences for various hydraulic and geomorphological studies.

S.No.	13
Name of the guide	Dr.P.DINAKAR
Name of the Student	L. KIRAN(20A51A0176) Y. NAVEEN(20A51A0194), S. HEMA SUNDARA RAO(20A51A0189), M. VASU NAIDU (20A51A0178) RUPESWARPATRO (20A51A0186) CH. SOUMYA(20A51A0157).
Project Title	EXPERIMENTAL STUDY ON PERFORMANCE OF R.C.C BEAMS WITH VARIOUS ORIENTATIONS OF SHEAR REINFORCEMENT

Abstract: The performance of shear reinforcement is determined by the ultimate shear strength, deflection, crack patterns and mode of failure. The shear reinforcement is provided in different forms. Each form has its own advantages in the performance of the R.C beams. In this project work an investigation has been performed to compare the shear resisting capacities between beams with vertical, spiral stirrups. A total of two shear reinforced concrete beams are fabricated and casted with concrete and tested under two-point bending after 28 days. To evaluate the shear performance of different type of shear reinforcement, the beams must be designed for the same shear strength and a comparative study is made between these two types of shear reinforcement related to the performance of the beams pertaining to the ultimate strength, deflection and crack widths.

S.No.	14
Name of the guide	Sri. R.CHANDRA SEKHAR
Name of the Student	20A51A0183 – NAKKA TEJESWARA RAO 20A51A0168 – GUNDA MANOHAR 20A51A0154 – BIDDIKA PREMCHAND 20A51A0188–SASAPU UDAY VENKATAKIRAN 20A51A0153 – BENDI SAIKIRAN
Project Title	A COMPARITIVE STUDY OF MARSHALL PARAMETERS BY USING DIFFERENT FILLER MATERIALS

Abstract: Bituminous concrete (BC) is most commonly used all over the world in construction projects like road surfacing (flexible pavements), parking lots, airports etc. BC mainly consists of asphalt or bitumen (used as a binder) and mineral aggregates which are mixed together in desired proportions and laid down in layers and then compacted. The volumetric properties we're examining include aspects like air voids, voids in mineral aggregate (VMA), and voids filled with asphalt (VFA). These properties are majorly responsible for surface failures like rutting, cracking, path holes etc. and in determining the durability and overall quality of asphalt pavements. The fillers has the following roles in bituminous concrete like filling voids, improving rutting resistance performance, mitigation of thermal cracking. To overcome all the failures the filler materials are added to bituminous concrete where all the properties like impermeability, stability, strength, flow value and bond between aggregate and bitumen will be increased. This project summarizes the careful consideration of marshal mix design and testing of bituminous concrete samples which emphasizes the effectiveness of different fillers (like Steel slag, granite powder, stone dust, etc.) materials in properties of bitumen concrete.Marshall parameters serve as crucial indicators of asphalt mixture performance and durability. The research investigates the influence of various filler materials on key Marshall parameters such as stability, flow, air voids, and voids in mineral aggregates (VMA). Through a systematic examination of these parameters, the study aims to discern the optimal filler material composition for enhancing the overall quality and longevity of asphalt pavements. By analyzing and comparing the performance of different filler materials, this study seeks to provide valuable insights for the construction industry, facilitating informed decision-making in asphalt mixture design and pavement engineering. Also it gives an idea of suitable filler material for different Marshall parameters of bituminous concrete.

S.No.	15
Name of the guide	Dr. V. SOWJANYA VANI
Name of the Student	AMARA YASWANTH (21A55A0135) KORNI APPALANAIDU (20A51A0173) YARRA YUVARAJ SAI (21A55A0129) PRAGADA MADHURI (20A51A0185) METTA SAI KUMAR (20A51A0180)
Project Title	AN EXPERIMENTAL STUDY ON SELF-COMPACTING GEO POLYMER CONCRETE THROUGH HEAT CURING

Abstract: Self-compacting concrete (SCC) is renowned for its exceptional workability, eliminating the need for traditional compaction methods during construction. On the other hand, Geo-Polymer concrete is gaining recognition for its environmental sustainability when compared to conventional Portland cement-based concrete. This study delves into the development of M20 grade concrete, with a specific focus on exploring the size effect of Self-Compacting Geo-Polymer Concrete (SCGC). Several tests, such as the L-box test, Slump test, and V-funnel test, were conducted to ensure the quality and workability of the SCGC. These tests are crucial in assessing various properties such as flowability, passing ability, and filling ability of the concrete mixture. The primary objective of the study is to evaluate the mechanical properties of SCGC specimens, with particular emphasis on compressive strength and split tensile strength. Heat curing is employed as a method to accelerate the concrete's curing process and assess its mechanical properties under simulated conditions. Compressive strength is a fundamental property that reflects the concrete's ability to withstand axial loads, while split tensile strength measures its resistance to tensile stresses. By examining these properties, the study aims to provide valuable insights into the performance and potential applications of SCGC in construction practices. Upon analysing the test results, the outcomes demonstrate promising mechanical properties of SCGC. Results show that the 100 mm cube samples experienced a percentage increase in strength of approximately 2760.42%, while the 150 mm cube samples saw a percentage increase of approximately 2369.57%. The satisfactory results underscore the potential of SCGC as a viable alternative in construction applications, offering improved workability, enhanced mechanical performance, and environmental sustainability compared to conventional concrete mixes.

S.No.	16
Name of the guide	Dr. V. SOWJANYA VANI
Name of the Student	R.UDAY KIRAN (21A55A0123) J.SHAREETH CHANDRA (21A55A0126) B.PAVAN KUMAR (21A55A0136) M.HARI (20A51A0182) N.RAJESH (20A51A0184)
Project Title	SELF COMPACTING GEOPOLYMER CONCRETE

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.GOVINDA RAJULU
Name of the Student	20A51A0172 K.TARUN KUMAR 21A55A0137 P.SUDHEER 20A51A0166 G.ASHOK KUMAR 21A55A0120 B.SAI 20A51A0196 D.GANESH
Project Title	STRENGTH AND DURABILITY INVESTIGATION ON STEEL FIBRE REINFORCED CONCRETE

Abstract: Steel fibre reinforced concrete (SFRC) is now a well-established construction material. In this research the laboratory investigations have been under taken to study the effects of varying fibre contents on the mechanical properties such as compressive strength and durability properties by the acid attacks with 1% diluted hydro chloric acid (HCL) and 1% diluted sulphuric acid (H_2SO_4). The samples are cured for the 7 days and 28 days. The experimental results of SFRC are discussed on **M30** grade of concrete with the hooked steel fibres dosage of 0.2%, 0.4%, 0.6%, 0.8%, 1% by the weight of the concrete. The result shows the strength and durability properties of SFRC with varying dosages of steel fibres enhanced in comparison with conventional and chemical immersion.

S.No.	18
Name of the guide	Sri G.GOWRISANKARA RAO
Name of the Student	A. ANITHA (20A51A0152) V. PREM SAI (21A55A0121) L. ESWARARAO (21A55A0132) V. HASINI (20A51A0150) DIVAKAR NAIKO (20A51A0162)
Project Title	BEHAVIOUR OF SELF-COMPACTING CONCRETE USING DIFFERENT PERCENTAGE OF ADMIXTURE

Abstract: The project gives a review on Self Compacting Concrete (SCC) to made using mineral admixtures and different percentage of chemical admixtures. Self Compacting Concrete describes a concrete with the ability to compact itself only by means of its own weight without the requirement of vibration. It is also known as self compacting high performance concrete.The outcome of the project is used to findout how much time is to be required for SCC to spreading a required area at constant height at different percentages of chemical admixture to give optimum compacting, filling ability, passing ability and workability.

S.No.	19
Name of the guide	Sri KRUPASINDHU BISWAL
Name of the Student	K. BHOOMIKA (20A51A0174) M. MAHESH (20A51A0181) M. VAMSI (20A51A0177) Y. VINAY KUMAR(20A51A0195) P. KRISHNA TEJA(20A51A0198)
Project Title	DESIGN OF HYDROGRAPH BY ESTIMATING THE PHYSIOGRAPHIC FEATURES OF A WATERSHED

Abstract: Understanding flood characteristics and predicting peak flows and volumes in un-gauged watersheds are crucial for effective water resource management and infrastructure planning. The Nagavali River basin, situated in the Srikakulam district of India, presents significant challenges due to the lack of comprehensive data on hydrological parameters and flow dynamics. This study aims to address this gap by employing a novel approach inspired by methodologies used in similar contexts. Drawing insights from neighbouring gauged watersheds and leveraging advanced modelling techniques, we propose a framework for estimating flood features in the Nagavali River basin. Through a comparative analysis of physiographic features and hydrological parameters with similar basins, we identify key parameters such as Curve Number (CN) and storage coefficient essential for flood estimation. Utilizing Geographic Information System (GIS) tools such as ArcGIS and HEC-GeoHMS, we delineate the basin's physiographic characteristics and integrate them into the Hydrologic Engineering Center's Hydrologic Modelling System (HEC-HMS).

S.No.	20
Name of the guide	Sri S.RAMLAL
Name of the Student	TANKALA SAI RAM(20A51A0190) SANAPAL MADHAVARAM (20A51A0187) LANDA GNANESWAR (21A55A0130) KISHAN BISOWI (20A51A0171) SANAPALA AISHWARYA (20A55A0199)
Project Title	STUDY ON DIFFERENT TYPES OF RETAINING WALLS INTRODUCING RELIEF SHELF AT VARIOUS HEIGHTS

Abstract: Retaining walls are generally built to hold the backfill soil. Retaining walls are structures that are constructed to retain such materials which are unable to stand vertically by themselves. The objective of this research is to study the behavior of the cantilever retaining wall with and without relief shelf, counterfort retaining wall with and without shelf at variable heights ranging from 6m to 12m. This study analyzes the factors such as stress distribution, deflection, bending moment, overall stability at different heights of the retaining walls. By comparing the performance of these two types of retaining walls choose the structural efficiency and feasibility of the structure at a particular height.

S.No.	21
Name of the guide	Dr. B. VISWESWARA REDDY
Name of the Student	DUNNA ASHA (20A51A0165) DEVARASETTI MOUNIKA (20A51A0161) JAMI SAI CHETHAN (21A55A0134) DASARI GANESH(20A51A0159) DUNDANGI HARSHAVARDHAN (20A51A0164)
Project Title	EVALUATION AND ANALYSIS OF MORPHOMETRIC ASPECTS OF NAGAVALI RIVER SUB WATERSHED USING ARCHYDRO TOOL

Abstract: An attempt has been made to study drainage morphometry and its impact on hydrology of Nagavali river sub-watershed, located in and around of Sitampeta Mandal, Srikakulam district, Andhra Pradesh, India. Drainage networks for the sub watershed was derived from Survey of India topographical map (1:50,000) and Advanced Land Observing Satellite (ALOS) - Phased Array type L-band Synthetic Aperture Radar (PALSAR) Digital Elevation Model (DEM) data used for preparing elevation, slope and aspects maps. Geographical information system (GIS) was used in evaluation of linear, areal and relief aspects of morphometric aspects. The study reveals that ALOS PALSAR DEM and GIS-based ArcHydro tool approach in evaluation of drainage morphometric aspects such as linear, areal and relief and their impact on hydrological characteristics at subwatershed level is more appropriate than the conventional methods.

S.No.	22
Name of the guide	Dr. D. HIMA CHANDAN
Name of the Student	GONDU VENU (21A55A0127) VARANASI GNANA SATYA (20A51A0169) BORIGI PAVAN KUMAR (20A51A0156) DASARI SAI DILLESWARA RAO (20A51A0160) CHITTIVALASA SAI (21A55A0138)
Project Title	COMPARITIVE STUDY ON GUST FACTOR METHOD IN (IS 875 CODE) WITH CFD ANALYSIS

Abstract: An attempt has been made to study drainage morphometry and its impact on hydrology of Nagavali river sub-watershed, located in and around of Sitampeta Mandal, Srikakulam district, Andhra Pradesh, India. Drainage networks for the sub watershed was derived from Survey of India topographical map (1:50,000) and Advanced Land Observing Satellite (ALOS) - Phased Array type L-band Synthetic Aperture Radar (PALSAR) Digital Elevation Model (DEM) data used for preparing elevation, slope and aspects maps. Geographical information system (GIS) was used in evaluation of linear, areal and relief aspects of morphometric aspects. The study reveals that ALOS PALSAR DEM and GIS-based ArcHydro tool approach in evaluation of drainage morphometric aspects such as linear, areal and relief and their impact on hydrological characteristics at subwatershed level is more appropriate than the conventional methods.

FACULTY PUBLICATIONS

S.No.	Academic Year	SCOPUS	SCI Journals	UGC Journals	WOS Journals	Peer Reviewed Journals	Total Journals
1	2023-2024	03	02	01	02	03	11

Title	RETROFITTING OF SAGGED & DISTRESSED GIRDERS OF A BRIDGE BY EXTERNAL POST TENSIONING– CASE STUDY
Author	Dr. V Sowjanya Vani
Journal	International Journal of All Research Education & Scientific Methods
Abstract	Distress in the concrete structures, especially in the bridges, can be due to various causes. In most cases of bridge construction, it is the lack of maintenance, quality of construction and engineering knowledge especially at the lower level are the cause for such failures or problems. With the available technology and equipment coupled with experience and knowledge in most cases it is possible to correct the failures if timely action is taken. This paper highlights a case study of such disasters. A bridge having four spans (two in each LHS & RHS of road stretch) each of 25 m length and have 9nos. of RCC girders in each span. The Non-Destructive & Semi Destructive test results indicate low grade of concrete than the designed grade. Sagging of girders is observed and thus resulting to bumping/jolting of superstructure of bridge during movement of heavy vehicles over it. If unattended, will lead to failure of bridge. This distress is due to shortfall of moment of resistance of the bridge girders and to increase the moment of resistance external post tensioning technique is being adopted. Also, epoxy injection grouting is carried out to treat voids in the structural members.

Title	EFFECTS ON THE PROPERTIES OF HIGH STRENGTH CONCRETE BY USING DIFFERENT FIBRES
Author	B. Govinda Rajulu & Dr. P. Dinakar
Journal	International Journal of All Research Education and Scientific Methods
Abstract	Availability of fresh water resources in the world is one of the most important concerns for the survival of mankind. In order to meet the future demand, available fresh water resources needs to be used sustainably. Suitable soil and water conservation measures to be taken timely to avoid the consequences such as shortage of fresh water resources in near future. For this purpose, identification of suitable sites are required where excess rain water is available and surroundings are supportive for amplifying the infiltration rate. This study focuses on selecting the sites those are suitable for water harvesting structure for Jamsholaghat sub-basin. This is done by overlaying land use and land cover map, drainage density map, runoff map, slope map, lithology map, curve number map, soil depth map, hydrological soil group map and lineament density map in the ArcGIS software by considering ranks assigned to each thematic map using Analytical Hierarchy Process. For selecting the ideal location of check dams and subsurface dykes, the criteria assigned are given by Integrated Mission for Sustainable Development. For check dams, it was found that 17%, 31%, 37% and 15% of the study areas are having low, moderate, high and very high suitability, respectively. For subsurface dykes, it was found that 10%, 27%, 38% and 25% of the study areas are having low, moderate, high and very high suitability, respectively.

Title	STRUCTURAL PERFORMANCE RECTANGULAR HONEYCOMB CORE SANDWICH PANELS
Author	B.Govinda Rajulu
Journal	Journal of Harbin Engineering University
Abstract	The focus has then been shifted to describing the experimental methodology adopted in this research. A variety of tests were performed to establish the structural capacity of RHCSP under the isolated effect of shear, out-of-plane compression and two-way flexural behavior under centered patch loads. These tests were essential for the development and validation of analytical expressions for predicting the capacity of the panels to several failure modes, which are introduced form the basis of a design method for RHCSP. More importantly, the next chapter focuses on the validation of detailed numerical models against these experimental results, so as to achieve are liable and computationally efficient methodology for assessing the structural behavior of RHCSP under different loading and support conditions.

Title	AN EXPERIMENTAL STUDY ON BEHAVIOR OF STEEL FIBER REINFORCED CONCRETE ON DIFFERENT TEMPERATURES
Author	G.Durga Rama Naidu
Journal	International Journal of Creative Research Thoughts
Abstract	An investigation on compressive strength of M25 grade concrete exposed to high temperature in absence of mixing of fiber. In some cases the steel fiber were added to concrete and then open to high temperature. The steel fiber used in study are 6mm long to a dosage of 0.3%, 0.6%, and 0.9% with the weight of concrete. When concrete open to fire it will be undergoes into spalling which leads expose metallic reinforcement, this motives anguish in concrete shape, in overall performance of concrete is expanded with the addition of steel fiber.

Title	RETROFITTING TECHNIQUES FOR DISTRESSED STRUCTURAL MEMBERS AND REPLACEMENT OF DAMAGED STRIP SEAL EXPANSION JOINTS IN BRIDGE REHABILITATION
Author	M.Sai Babu
Journal	International Journal of Creative Research Thoughts
Abstract	Bridge structures are highly dependable in terms of their longevity and performance due to the quality of their concrete, which is exposed to a variety of moisture and traffic loads. Reinforced cement concrete members are prone to deterioration if not properly maintained. The strip seal system is an essential element of bridge decks, which is composed of steel extrusion cast into the concrete and neoprene glands. The steel within the concrete is essential for the structure's stability and longevity. This paper examines the effectiveness of using retrofitting techniques to strengthen distressed structural members, as well as replacing damaged strip seals expansion joints in a bridge rehabilitation project in the Eluru-Anakapalli section of AndhraPradesh, such as shotcreting in areas with delaminated surfaces, grouting in areas with honeycombed surfaces, repair mortar in areas with spalled surfaces, and high strength micro concrete jacketing in areas with anticoagulant coatings.

Title	IDENTIFCATION OF SUITABLE SITES FOR WATER HARVESTING STRUCTURES IN JAMSHOLAGHAT SUB-BASIN USING GIS AND MULTI-CRITERIA DECISION ANALYSIS
Author	S. K. Ray
Journal	Journal of the Indian Society of Remote Sensing
Abstract	Availability of fresh water resources in the world is one of the most important concerns for the survival of mankind. In order to meet the future demand, available fresh water resources needs to be used sustainably. Suitable soil and water conservation measures to be taken timely to avoid the consequences such as shortage of fresh water resources in near future. For this purpose, identification of suitable sites are required where excess rain water is available and surroundings are supportive for amplifying the infiltration rate. This study focuses on selecting the sites those are suitable for water harvesting structure for Jamsholaghat sub-basin. This is done by overlaying land use and land cover map, drainage density map, runoff map, slope map, lithology map, curve number map, soil depth map, hydrological soil group map and lineament density map in the ArcGIS software by considering ranks assigned to each thematic map using Analytical Hierarchy Process. For selecting the ideal location of check dams and subsurface dykes, the criteria assigned are given by Integrated Mission for Sustainable Development. For check dams, it was found that 17%, 31%, 37% and 15% of the study areas are having low, moderate, high and very high suitability, respectively. For subsurface dykes, it was found that 10%, 27%, 38% and 25% of the study areas are having low, moderate, high and very high suitability, respectively.

Title	FLOOD RISK INDEX MAPPING IN DATA SCARCE REGION BY CONSIDERING GIS AND MCDA (FRI MAPPING IN DATA SCARCE REGION BY CONSIDERING GIS AND MCDA
Author	S. K. Ray
Journal	Environment, Development and Sustainability
Abstract	Climate change is responsible for triggering one of the most destructive natural disasters known as flooding. The food risk index quantifies the vulnerability of an area to flooding, providing valuable insights for mitigation and preparedness efforts. Flood risk index integrates factors, aiding understanding and fostering resilient communities. This study uses an integrated strategy of geospatial technology and multi-criteria decision analysis to produce a map of the food risk index for a data scarce region. Through this research work, fifteen thematic maps (i.e., Lithology, Soil, Slope, Drainage Density, Land use and Land cover, Rainfall, Distance from river, Permeability, Runoff, Normalized Difference Vegetation Index, Normalized Difference Built-up Index, Modified Normalized Difference Water Index, Topographic Wetness Index, Profile and Plan Curvature) in case of food hazard index and three thematic maps (i.e., Population density, Crop production and Road river interaction) in case of food vulnerability index were used. Thematic maps checked for multicollinearity, overlaid in ArcGIS with ranked assignments using AHP to develop food hazard and vulnerability maps. The food risk map was developed by integrating the food hazard and vulnerability maps. The research region divided into five categories based on food risk index map: very low (8%), low (28%), moderate (16%), high (20%), and very high (28%). The regions such as Vangara, Pathapatnam, Tekkali, Kasumala, and Ichapuram shows very high tendency towards food risk. This was due to favorable factors such as high/ moderate runoff, slope (very gentle/ gentle), very low/ low permeability, lithology (granite/ gneiss) etc. of the research region.

Title	ADSORPTION STUDIES OF MORINGA OLEIFERA SEED POWDER IN REMOVAL OF CADMIUM, ZINC AND CHROMIUM FROM WATER
Author	H. Ramamohan
Journal	Indian Journal of Environmental Protection
Abstract	This work suggests the use of natural alternative coagulation method in the removal of Cd, Zn and Cr compared to chemical coagulants as they are toxic, unfriendly and unaffordable by nature, which are commonly used. The functional groups present in the Moringa oleifera seed powder (MOSP), which help in the adsorption of metal ions were identified and analysed by Fourier transform infrared (FTIR). It is identified that, at optimum levels of pH and dosage, the maximum elimination of Cd, Zn and Cr was observed at 89.01, 80.74 and 69.24%, respectively. The physico-chemical characteristics of metal ions and the selective biosorption of MOSP functional groups are consistently correlated in single sorption, with the order of biosorption preference being Cd, Zn and Cr. Due to the fact that the sorption capacities (q_m) of MOSP for Cd, Zn and Cr were 6.40, 5.77 and 4.25 mg/g, respectively, in comparison to Freundlich models, the adsorption values fit more closely. MOSP adsorbent favoured the adsorption processes of Cd, Zn and Cr in acquiring the separation factor (R_L) at the required range of 0-1. Hence, this study emphasizes the effective adsorption of MOSP in removal of heavy metal ions from contaminated water.

Title	EFFECT OF DRY MIX ALKALI ACTIVATED SLAG BINDER COMPOSITE PROPERTIES CURED IN AMBIENT CONDITION
Author	G. Durga Rama Naidu
Journal	Global NEST Journal
Abstract	A dry mix (solution-free) alkali-activated slag (a primary cementitious material) and/or fly ash based binder composition is developed that can be cast in-site and consequently cured at ambient temperature. Mortar specimens were cast by mixing slag and or fly ash, river sand, powder form alkaline activators (NaOH 14M, varying solids percentage of Na_2SiO_3) and water were thoroughly mixed in fabricated equipment. The dry density (28 days) of all specimens showed greater than 2200 kg/m3. The compressive strength (28 days) of all mixes was resulted in higher than 40 N/mm2. Among all the four mixes, a mix F103 with 90% slag, 10% fly ash, 30% Na_2SiO_3 and 14M NaOH at 3, 7 and 28 days curing showed overall higher compressive strength. It is due to fewer solids content of Na_2SiO_3. The experimental results indicated that solution free studied binder composite can be developed under ambient conditions eliminating other curing types without compromising in the strength. The studied sustainable mixes require only 12-15 percent water which is less compared to regular used mixes. Thus reduced water quantities can be achieved thereby protects the reduction in volume of water bodies, environment hazards, reduces CO_2 emissions due to use of industrial by-products as main binders.

Title	GREEN REINFORCEMENT: EXPLORING BAMBOO'S POTENTIAL IN SUSTAINABLE CONCRETE CONSTRUCTION
Author	Divya Sri Velamala
Journal	Revista Materia
Abstract	Steel and cement production emits CO_2 , spurring research for alternatives. Concrete materials are studied for shortages and enhancement. Construction, especially steel structures, will grow, but costs and shortages loom. Developing countries face steel scarcity and higher costs. Researchers explore natural or synthetic f iber replacements for steel, with bamboo showing promise. This study examines bamboo, with and without epoxy coating, as a steel substitute. Bamboo can replace steel in small or non-critical structures. The article explores bamboo's properties and behavior in reinforced concrete. Treating bamboo is vital for bond strength and flexural behavior under static loads. Three coatings are tested: natural, epoxy-coated, and epoxy with sand coated bamboo. Twelve slab specimens are tested per Indian standards against steel-reinforced concrete slabs. The study evaluates bond strength, flexural behavior, and crack resistance using ultrasonic pulse velocity tests. Epoxy and sand-coated bamboo show significant improvement in bond strength, flexural performance, and concrete quality.

Title	A CASE STUDY ON MODEL UPDATING OF LONG UNIFORM BUILDINGS
Author	Dr.D.Hima Chandan
Journal	Journal of Civil Structural Health Monitoring
Abstract	In the Structural Health Monitoring (SHM) framework, model updating procedure is an iterative or cyclical process which gives numerical model of structure having modal behaviour close to the dynamic behaviour of real structure. Normally for structures with or without any expansion joints typical model updating procedure is used. But the typical procedure may not be applicable for long uniform buildings having expansion joints since the individual blocks in structure connected with expansion joints tend to vibrate in coherence. This behaviour is confirmed by observing the identicalness of modal frequencies of individual blocks in long uniform buildings. This phenomenon was observed in three selected long uniform buildings. When structures connected with expansion joints vibrate in coherence or when the modal frequency of the connected structures are identical, the numerical models of these structures cannot be updated using typical procedure for the following reasons: (1) Modal parameters from Modal identification of structure doesn't represent the actual parameters of the individual block since the ambient vibration is not independent and is influenced by interaction between blocks. (2) Modal analysis of analytical model of individual structural blocks gives dynamic parameters which are true to the model. And these two sets of parameters can't be compared for convergence in model updating procedure. Therefore, to update a numerical model of long uniform buildings with expansion joints having the coherence phenomenon among its individual blocks, a different is needed. Hence, a new approach is proposed where instead of using modal parameters from analytical analysis, the parameters obtained for the structure from modelled floor responses to weak earthquake using Frequency Domain Decomposition (FDD) algorithm are used for checking convergence in model updating procedure. To demonstrate the proposed procedure, two long uniform buildings in which the coherence phenomenon was observed were updated by applying the proposed procedure and results are discussed. Here for the selected buildings, only modal frequencies were used for checking convergence, since mode shapes obtained were not reliable as floor vibration data of intermediate floors were not available.

ADITYA

Institute of Technology and Management
(An Autonomous Institution)

Tekkali-532 201, Srikakulam Dist., AP
Tel: 0845-245666, 245266, 92466 57908
Email: info@adityatekkali.edu.in