ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

DEPARTMENT OF CIVIL ENGINEERING

INERTIA 2K22

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Volume 14, 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.

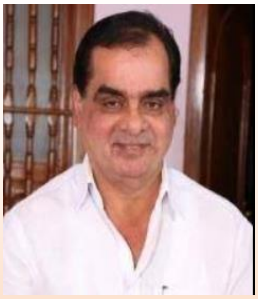
Provide students and faculty with opportunities to create, disseminate and apply knowledge by maintaining a state of the art research.

Chairman's Message

At AITAM, we are committed to excellence in everything we do. We strive to shape 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	B.GANESH
Name of the Student	K.VINEETH (18A51A0123) G.PAVAN KUMAR (18A51A0120) D.DINESH (19A55A0106) A.ANKITH (18A51A0101)
Project Title	SOIL STABILIZED WITH FLYASH AND LIME WITH GEOGRID USED AS REINFORCEMENT

Abstract:

Paper reports the outcome of an experimental investigation into the effect of fly ash mixed with small amount of lime on the strength characteristics of soil, to ascertain its suitability for use as a construction material. In the present investigation, a series of laboratory tests (Compaction tests, Triaxial tests, Unconfined compressive strength (UCS) tests and California bearing ratio (CBR)) were conducted on soil specimens added with various percentages of fly ash and fly ash mixed with lime by the weight of dry soil. The test result reveals that the optimum content of admixture for achieving maximum strength is approximately 15% fly ash mixed with 4% lime of the dry weight of the soil. Indian Geotechnical Conference – 2010, GEO trendz December 16–18, 2010 IGS Mumbai Chapter & IIT Bombay. THIS is study deals with the stabilization of sandy soils through the application of fly ash. Soil stabilization simply means the permanent physical and chemical alteration of soils to enhance their physical and engineering properties. The main aim of this study is to determine the percentage of fly ash that would be added to a sandy soil to obtain the optimum stability of the soil. In order to achieve these, the following tests were carried out: Sieve analysis, Compaction test, unconfined compressive strength test. Sieve analysis is carried out purposely to determine the percentage of different grain sizes contained within a sandy soil. On the other hand, Compaction test was carried out in order to determine the maximum dry density and optimum moisture content of the sandy soil and lastly, unconfined compressive strength test was carried out to determine the compressive strength of the sandy soil sample with the addition of fly ash in percentages as a stabilizing agent. After carrying out the above tests, observations were noted and considered and it was discovered that 40% fly ash has the highest impact in the increment of the compressive strength of the sandy soil and will be most suitable for the stabilization of sandy soil. So therefore, we recommend the addition of 40% fly ash to the sandy soil to be used on site for maximum stability.

S.No.	02
Name of the guide	Mr.KRUPASINDHU BISWAL
Name of the Student	K.LAKSHMANARAO (19A55A0111) P.VENU GOPAL (19A55A0119) B.JYOTHI (18A51A0104) B.SAI KIRAN (18A51A0107) P.DILEEP KUMAR (18A51A0116)
Project Title	A STUDY ON FERROCEMENT IN THE CONCRETE OF COMPRESSIVE STRENGTH AND TENSILE STRENGTH

Abstract:

Ferro cement is a system of reinforced motor or plaster applied over layers of metal. It consists of closely spaced, multiple layers of mesh or fine rods embedded in cement motor .when used in house countries in developing countries, it provided better resistance to fire, earthquake, corrosion then tradition materials such as wood, stone masonry. Beams that are constructed by wire reinforced cement. These beams are constructed from cement motor on a mesh of wire reinforcement to form rectangular shape giving the minimum thickness depending on the size of the beam. The purpose of this study was to check the design details of Ferro cement beams. Ferro cement is a thin, versatile construction material, with several unique properties and suitable for wide range of applications in Civil Engineering. Generally concrete structures are designed for static loads but sometimes dynamic loads like blasts etc. Prefabricated elements are used in construction industry as an alternative system to overcome the formwork problems in addition to getting better quality control. The prefabricated elements made of reinforced concrete are extremely heavy and difficult to transport, placing in position and to construct. Because of its good structural performance and low cost ferro cement is used in construction industry. Ferro cement is suitable for the construction of roofing/floor elements, precast units, manhole covers, and construction of domes, vaults, grid surface and folded plates. So finding the flexural behavior of ferro cement is necessary. Therefore, the flexural strength is determined by varying the meshes in the U-section and varying the thickness of the beam.

S.No.	03
Name of the guide	P.L.RAM KIRAN
Name of the Student	P. BALARAM (19A55A0120) P. MANMADHA (18A51A0137) B. MOHAN RAO (18A51A0108) K.SAI CHARAN (18A51A0126) L. YOGENDRA (18A51A0127)
Project Title	THE ANALYSIS OF LANDUSE AND LANDCOVER CHANGE ON THE NAGAVALI RIVER BASIN USING ARCGIS

Abstract :

Land use land cover (LULC) change is one of the major driving forces of global environmental change in many developing countries. In this study, LULC changes were evaluated in the Nagavali river catchment in Srikakulam between 2001 and 2020. The catchment is a major source of water supply to Gaborone city and its surrounding areas. The study employed ARCGIS using Landsat imagery of 2001, 20010 and 2020. Image classification for each of these imageries was done through supervised classification using the Maximum Likelihood Classifier. Six major LULC categories, cropland, bare land, shrub land, Natural vegetation, tree savanna and water bodies, were identified in the catchment. It was observed that agriculture land and tree savanna were the major LULC categories between 2001 and 2020 while Savanna and cropland dominated the catchment area in 2020. The rates of change were generally faster in the 2001- 2010 and 2010–2020 periods. For these periods, mixed forests increased by 7.89 % and 40.21%, respectively, while bare land increased by 2.07 % and 3.37%However, in the overall period between 2001and 2020, significant losses were observed for agricultural land, 4.2 % and woody savanna, 1.789 % . The results suggest the need to closely monitor LULC changes at a catchment scale to facilitate water resource management and to maintain a sustainable environment.
Keywords: land use land cover and ArcGIS.

S.No.	04
Name of the guide	Mr. G. GOWRI SANKARA RAO
Name of the Student	G. BHAVANA (18A51A0114) M. SURYANARAYANA (19A55A0116) R. SURENDRA (19A55A0123) B. JASWANTH (19A55A0102) D. VASKAR RAO (18A51A0111)
Project Title	STUDY ON PARTIAL REPLACEMENT OF CEMENT AND SAND WITH RHA AND GRANITE POWDER

Abstract:

Concrete is one of the significant materials of the construction industry in the present scenario. the overall cement production is about 4.1 billion metric tons worldwide. In India rice milling produces a byproduct which is known as Husk. This husk is used to produce steam for boiling process .This husk contain near about 75 % organic matter and the remaining 25% of this husk is modified into Ash during the firing process which know n as rice husk ash (RHA).This project aims for maximum optimum value within 10% of replacement by Cement for better compressive strength and durability. Granite process industry generates a large amount of wastes mainly in the form of powder during sawing and polishing processes, which pollute and damage the environment. This work aims to characterize and evaluate the possibilities of using the granite sawing wastes, generated by the process industries from Srikakulam District, as alternative raw materials in the production of concrete. In order to explore the possibility of utilizing the granite powder as partial replacement to sand, an experimental investigation has been carried out. The percentages of granite powder added to replace sand by weight were 10, 20, 30, 40 and 50.Various experimental investigations are carried out to find out the compressive strength, split tensile strength and of concrete samples cured for period of 7 and 28 days.

S.No.	05
Name of the guide	G.ANIL KUMAR
Name of the Student	M.KUMAR SWAMY (19A55A0115) P.TIRUMALA VENKATESH (18A51A0138) D.VAMSI (18A51A0112) K.VASAVI (18A51A0124) B.GUNESH (18A51A0109) M.AKHIL (18A51A0132) CH.RAMABABU (19A55A0104)
Project Title	A STUDY ON NATURAL FIBER REINFORCEMENT IN EXPENSIVE 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. Coir 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 coir fiber in a random manner. The mechanisms of improvement in strength, behavior of Expansive soils due to the inclusion of coir fibers. This facilitates the use of combination of Expansive soil and coir fibers for sustainable development purposes. that the stabilization of soil using 30mm pieces of coir 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.

S.No.	06
Name of the guide	Dr. P. DINAKAR
Name of the Student	G. SIVA SANKAR (18A51A0118) A. MAHADEV (18A51A0103) M. DIVAKAR YADAV (18A51A0129) M. VIJAY KUMAR (18A51A0133) Y. UDAY SAI KUMAR (19A55A0125)
Project Title	EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF CEMENT WITH GRANITE POLISHING POWDER AND SAND REPLACEMENT WITH QUARRY DUST

Abstract :

The locality of Tekkali consisting of many granite industries which produce high amount of granite powder & quarry dust as waste material which is highly hazardous to the environment. The theme of the experimental investigation is to find out the use of naturally available waste material as a partial replacement of cement & fine aggregate resulting in improving the test results. To encounter the environmental issues such as global warming and to reduce the carbon footage in construction in industry, this investigation of partial substituent in cement and sand, will be helpful to achieve the sustainability in environment. The influence on the utilization of granite polishing powder & Quarry dust on compressive strength of M 30 grade of concrete can be studied by various percentages.

S.No.	07
Name of the guide	Dr. B. V. REDDY and Sri P. RAM PRASAD
Name of the Student	K.GUNAKAR RAO (19A55A0110) B.BHARATHI (18A51A0105) L.ABHIRAM (19A55A0113) G.SAI VAMSI (18A51A0119) M.HARSHAVARDAN (19A55A0107)
Project Title	THE EFFECTS OF DIFFERENT ADDITIVES ON COMPRESSIVE AND FLEXURAL STRENGTHS OF LIGHT FOAMED CONCRETE

Abstract:

Foamed concrete was established for void filling and insulation purposes, but the interest is progressively changing towards structural characteristics in today's society. This paper describes the results of experimental study that have been performed to investigate the effects os different densities and additives on the on the mechanical properties foamed concrete. Additionally, control foamed concrete samples with different densities (600kg/m^3,1000kg/m^3 and 1400kg/m^3) and different additives were prepared independently to study the impacts of specimens were prepared with locally available materials which are fuel ash, polypropylene fiber, silica fume and jute fiber. This study has revealed that the compressive strength of foamed concrete was affected by its density due to the percentage of porosity. On the other hand, it was found that foamed concrete sample with coconut fiber yield better enhancement of the mechanical properties. Coconut fiber as reinforcement in foamed concrete is adequate and has high failure strain which can be able to provide a better compatibility between fibers and matrix. Output from this research would give better understanding of the potential utilization of waste by-products and natural fibres in foamed concrete. Foamed concrete can be used as a new energy-conservation and environmental-protection building material, particularly suitable for the construction of monolithic building envelope in Malaysia.

S.No.	08
Name of the guide	Dr. M. BALENDRA MOULI
Name of the Student	S.NAVEEN (19A55A0124) P.PRUDVIRAJ (19A55A0121) P.MURALI (19A55A0118) N.SUDHARSHAN (19A55A0117) L.MOHAN (18A51A0128) J.HARI KRISHNA (18A51A0121) K.KRISHNAKISHOR (18A51A0122)
Project Title	A STUDY ON NATURAL FIBER REINFORCEMENT IN EXPANSIVE SOILS

Abstract :

Composites have been used from very long time for solving technological problems withuse of Natural Fibers due to their unique, superior properties and light weight. Natural Fibers are nowa common material used and has created an impact in terms of product performance and their lightweight. Natural Fibers have created an enthusiasm and use of them has been increased to take over the place of synthetic fibers in different fields. Jute fiber is assuring reinforcement in composite. Jute one of the natural Fiber, is most promising and is readily available, degradable and possesses good mechanical properties. This review is to provide a focus on Jute Fiber and its use different sectors such as construction sector, automobile sector, textile sector, etc. In addition to this, it also gives basic idea of Natural Fibers and their Reinforced Composite. This review provides an overview of importance of the factors to be considered when designing the composites which affects the mechanical properties. Once upon a time, Jute was called the golden fiber of Bangladesh. Due to some problems and growth of modern technology, the market share of jute has decreased. In this paper, the effect of Woolenization of jute fiber was described. It also shows how the physical and chemical properties of jute have been changed by alkali-treatment as well as its structure. It was demonstrated that this kind of treatment leads to several changes in its structure which has turned to a near wool structure. These works are done by different concentrations of different alkalis. Finally, 15% NaOH treatment of jute show maximum woolenized properties where we obtain softened and swollen jute. Conclusively, we have made some other products from woolenized jute fibers such that if introduced into our world market, it can increase the market share of jute fiber.

S.No.	09
Name of the guide	Dr. CH. VASUDEVA RAO
Name of the Student	CH.SEKHAR (19A55A0103) B.SRAVANI (18A51A0106) A.VINEETH (18A51A0102) K.GOWTHAM (18A51A0125)
Project Title	SOIL STABILIZATION WITH FLYASH AND LIME WITH GEOGRID USED AS REINFORCEMENT

Abstract:

Paper reports the outcome of an experimental investigation into the effect of fly ash mixed with small amount of lime on the strength characteristics of soil, to ascertain its suitability for use as a construction material. In the present investigation, a series of laboratory tests (Compaction tests, Triaxial tests, Unconfined compressive strength (UCS) tests and California bearing ratio (CBR)) were conducted on soil specimens added with various percentages of fly ash and fly ash mixed with lime by the weight of dry soil. The test result reveals that the optimum content of admixture for achieving maximum strength is approximately 15% fly ash mixed with 4% lime of the dry weight of the soil. Indian Geotechnical Conference – 2010, GEOtrendz December 16–18, 2010 IGS Mumbai Chapter & IIT Bombay. THIS is study deals with the stabilization of sandy soils through the application of fly ash. Soil stabilization simply means the permanent physical and chemical alteration of soils to enhance their physical and engineering properties. The main aim of this study is to determine the percentage of fly ash that would be added to a sandy soil to obtain the optimum stability of the soil. In order to achieve these, the following tests were carried out: Sieve analysis, Compaction test, unconfined compressive strength test. Sieve analysis is carried out purposely to determine the percentage of different grain sizes contained within a sandy soil. On the other hand, Compaction test was carried out in order to determine the maximum dry density and optimum moisture content of the sandy soil and lastly, unconfined compressive strength test was carried out to determine the compressive strength of the sandy soil sample with the addition of fly ash in percentages as a stabilizing agent. After carrying out the above tests, observations were noted and considered and it was discovered that 40% fly ash has the highest impact in the increment of the compressive strength of the sandy soil and will be most suitable for the stabilization of sandy soil. So therefore, we recommend the addition of 40% fly ash to the sandy soil to be used on site for maximum stability.

S.No.	10
Name of the guide	Mr. G. GOWRI SANKARA RAO
Name of the Student	P. SIREESHA (18A51A0136) G. GOUTHAM (18A51A0117) N. SAI CHARAN (18A51A0135) K. YOHANU (19A55A0112)
Project Title	CASE STUDY ON CONCRETE USING NATURAL WASTE RHA AND GRANITE POWDER

Abstract:
In India rice milling produces a byproduct known as Husk. husk is used as fuel for specific purpose .This husk is finally converted into ash after fulfilling its need , after being fired it's byproduct is termed as RHA.This paper aims for maximum optimum value within 10% of replacement for better compressive strength and durability.Granite process industry generates a large amount of wastes, mainly in the form of powder during sawing and polishing processes, which pollute and damage the environment.This work aims to characterize and evaluate the possibilities of using granite sawing wastes, generated by the process industries from Srikakulam District, as alternative raw materials in concrete, partially replacing the river sand. In order to explore the possibility of utilizing the granite powder as partial replacement to sand, an experimental investigation has been carried out. The percentage of granite powder added to replace sand by weight were 10, 20, 30, 40 and 50.

S.No.	11
Name of the guide	Mr. S. VARDHA RAJAN
Name of the Student	P. BALA KUMARI (19A55A0122) M. SAI KUMAR (18A51A0131) D. APPANA (19A55A0105) D. LIKITH (18A51A0113)
Project Title	STUDY ON DISTRESS FAILURE OF THE ROAD PAVEMENT

Abstract:
The road pavements conditions affect safety and comfort, traffic and travel times, vehicles operating cost and emission levels. In order to optimize the road pavement management and guarantee satisfactory mobility conditions for all road users the pavement management system (PMS) is an effective tool for the road manager. An effective PMS requires the ability of pavement distress data, the possibility of data maintenance and updating. Based on data collection systems and processing approach aimed at the pavement collection evaluation. Both commercial solutions and research approach have been included. The main goal is to draw a framework of the actual existing solutions suitable for the further research and technical improvement, while also considering the automated and semi-automates emerging technologies. To evaluate the aptness of the data collection and extraction to the type of distress considering the distress detection, classification and quantification phases of the procedure The application of Analytic Hierarchy Process (AHP) method for the prioritization of pavement maintenance sections is widespread now-a-days. Although the evaluation of pavement maintenance section through AHP method is simple, where the relative importance (on Saaty's scale) assigned to each parameter in the hierarchy varies between the experts (transportation professionals) consulted, which leads to discrepancies in the final rankings of the sections', due to the subjectivity in the process. Further, experts base their decisions solely on their experience while consideration is not given to the actual quantitative physical condition of the roads. To overcome these difficulties an objective based AHP method is proposed in this study, where pairwise comparison values are assigned based on the collected field data from a road network in Mumbai city, consisting of 28 road sections. The final ranking list of candidate sections takes into consideration the priority weight of alternatives, which reflect the road conditions. The solution of priority ratings of AHP method is compared with the corresponding solution of road condition index method, a traditional pavement maintenance procedure. The findings of the present study suggest that objective based AHP method is more suitable for the prioritization of pavement maintenance of roads.

S.No.	12
Name of the guide	SRI CH. CHANDRA MOULI and Dr. P.DINAKAR
Name of the Student	P. Priyanka Naidu (18A51A0144) G. Divya (18A51A0146) R. Chiranjeevi (18A51A0170) P. Soma Raju (19A55A0140) T. Rakesh (19A55A0147) Y. Pavani (19A55A0150)
Project Title	RETROFITTING AND REHABILITATION OF RC BEAMS BY PARTIALLY REPLACEMENT OF RIVER SAND WITH SEA SAND

Abstract:

Retrofitting is the modification of existing structures to make them more resistant to external force quantities.` The objectives like Upgraded loading requirements; damage by accidents and environmental conditions, rectification of initial design flaws, change of usage can be achieved by retro fitting. Base ladder technique is an alternative technique for crack control of reinforced concrete(RC) beams. This research, investigates the strength performance , failure mode and crack behavior of RC beams incorporated with sea sand bonded externally with the base ladder. Here we used sea sand as a100% and 50% replacement of fine aggregate. The most significant material of construction is concrete. This material has been termed as composite material comprising of fine aggregate, water, coarse aggregate & cement. The term fine-aggregate has been a pre-requisite in huge amount of concrete production. Usually, sand from river has been utilized as fine amount. Because of enhancement in concrete usage in construction domain, the requirement for sand is enhanced rapidly. The confines have been fed on huge scale river mining from beds of river. Hence, the simulation study has been performed on concrete cement robustness by substituting partially sand of sea with sand of river in the form of fine amount. Furthermore, in this contribution, soaked, sea sand and sand that is heated has been utilized. The sand of sea in fine amount has been substituted as per multiples of 25. This manuscript prominently examines the split TS (tensile strength) and CS (compressive strength) of concrete, where sand from sea has been utilized as fine soil that is completely or partially substituted and examined for 28 & 7 days. Also, the concrete conduct by partial substitution of fine amount with sand from sea has also been researched. Concrete is the most popular building material in the world. River sand has been the most popular choice for the fine aggregate component of concrete in the past, but overuse of the material has led to environmental concerns, the depleting of securable river sand deposits and a concomitant price increase in the material. Therefore, it is desirable to obtain cheap, environmentally friendly substitutes for river sand that is preferably sea sand. The Land Reclamation and Development Board (Sri Lanka) plans to popularize the use of sea sand as an alternative to river sand.

S.No.	13
Name of the guide	Dr. V. SOWJANYA VANI
Name of the Student	Y.SANTOSHI KUMARI (18A51A0155) K.KARTHEEK (18A51A0166) M.SAI TARUN (19A55A0135) N.DEVI PRASAD (19A55A0136) S.NAGARAJU (19A55A0144)
Project Title	AN EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE WITH COPPER SLAG IN FIRE AFFECTED CONCRETE

Abstract:

Copper slag is an excellent by-product or waste material which retains its original properties. Due to its chemical composition which includes high iron, silica and aluminium oxide content, it can be used as a partial replacement for fine aggregate in concrete mixes. Mix design of concrete is done on weight basis, by adding various percentages of copper slag 10%, 20%, 30%, 40% instead of fine aggregate and concrete mixture is prepared based on it. The cubes are prepared for optimum percentage of copper slag, demoulded after 24 hours and properly cured. The residual compressive strength of uncontrolled fire exposed to temperature is investigated in this research. The optimum percentage of replacement of Copper Slag is 30%. Three different state of testing are done in this process i.e, Air Test, Hot Test, Water Quenching Test. Air Test: Test this cubes after keeping the cubes for 24 hours at room temperature and to conduct the compression test in UTM. Hot Test: Test this cubes after the completion of burning process then to conduct the compression test in UTM. Water Quenching Test: Test this cubes after immersing the burned cube in the water and take that cube to the CTM to test for compressive strength test.

S.No.	14
Name of the guide	Sri Krupasindhu Biswal
Name of the Student	K.Vandana (19A55A0130) M.Santhoshi (18A51A0161) P.Eswara Rao (18A51A0141) T. Sadhan (18A51A0174) G.Komalavara Prasad (19A55A0134)
Project Title	A COMPARATIVE STUDY OF DEFLUORIDATION OF WATER USING TAMARIND FRUIT COVER AND TEA ASH

Abstract :

Fluoride, one of the wastes from the fertilizer industry and some manufacturing plants, mixes with water and causes various an atomical and various harms when it is ingested by organisms. Its concentration can be reduced more easily by the absorption method than by various methods to remove fluoride from water, this is called defluoridation. Fluoride, which has an opposite charge property, can be easily removed by a positively charged material. Part of this can be removed by absorption with an aqueous solution made from the cover of tamarind fruit and Tea Ash. Fluoride related health hazards are a serious environmental problems across the globe. Defluoridation refers to method of water treatment that reduces the concentration of fluoride in the water. This technique is used for the removal of excess fluoride the aqueous solution using Tamarind fruit cover and Tea Ash. Urbanization and Industrialization cause various changes in the environment and the resulting chemical and organic matter causes various harms to living things in this world and this harm also affects future generations.

S.No.	15
Name of the guide	Mr.S.RAM LAL
Name of the Student	P. Rakesh -18A51A0145 P. Suresh -18A51A0142 B. Ananda Rao- 19A55A0151 G. Manikanta -19A55A0128 K. Babuji -19A55A0131
Project Title	AN EXPERIMENTAL STUDY ON COMPRESSIVE STREGTH OF DIFFERENT TYPES OF PAVEMENTS BY USING NON DESTRUCTIVE TECHNIQUE(NDT)& DESTRUCTIVE TECHNIQUE METHODS

Abstract:
The objective of this study is to estimate the compressive strength of pavement made by using chemical admixture polycarboxile ether (PCE SP) on Portland Slag Cement (PSC) of three different water cement ratio's. i.e., 0.55,0.45 & 0.35, by using the most popular Non Destructive Test(NDT) method RH(Rebound Hammer). In assessing compressive strength of pavement, they were prepared, cured and subjected to RH (Rebound Hammer) at the end of 14 & 28 days. The destructive tests are also be done for same specimens after completion of non-destructive tests to compare the results.

S.No.	16
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Name of the Student	P. SaiChandu (19A55A0139) P. Ramaraju (19A55A0137) P. Praveen (18A51A0148) Ch.Tata Rao (18A51A0168) T. RaviTeja (19A55A0146)
Project Title	STUDY ON SELF COMPACTING CONCRETE WITH GLASS FIBRE

Abstract:
European Federation of National Association Representing for Concrete (EFNARC) is the dedicated to specialist construction chemicals and concrete systems. As Indian codes are silent about self-compacting concrete (SCC) hence regarding using of SCC.EFNARC code is widely used in India and many countries. In this present study the equipment's used in SCC are being fabricated as per EFNARC code and tested. Self-compacting concrete is a special types of concrete which can be placed and consolidated under its own weight without any vibration effort due to its excellent deformability, and which the same time is cohesive enough to be handled without segregation or bleeding. Glass fibers helped to improve toughness, tensile and flexural strength also reduce cracks and shrinkage in concrete. The EFNARC Specification defines specific requirements for the SCC material, its composition and its application. SSC has many benefits in terms of production placement compared to traditional concrete namely, elimination of external or internal vibration for compaction, better flowability, workability and pumpability, as well as increased bonding with congested reinforcement. It is very fluid and can pass around obstruction and fill all the corners without the risk of either mortar or ingredients of concrete separating out, at the same time there are no entrapped air.This type of concrete mixture does not require any compaction and is save time, labour and energy.

S.No.	17
Name of the guide	Dr. P. DINAKAR
Name of the Student	Y. Neelima - 18A51A0157 R. Sai Kiran - 18A51A0148 M. Omprakash - 18A51A0165 A.Hari Murali Krishna -19A55A0126 U. Shiva Lokesh -19A55A0148 T. Yamini Chandana -17A51A0191
Project Title	EXPERIMENTAL INVESTIGATIONS ON SELF-COMPACTING CONCRETE WITH PARTIAL REPLACEMENT OF CEMENT WITH FLYASH

Abstract:

European Federation of National Association Representing for Concrete (EFNARC) is the dedicated to specialist construction chemicals and concrete systems. EFNARC code widely used in India and in many countries for self-Compacting concrete for explaining the properties of self-Compacting Concrete. In this present study the equipment's used in SCC are being fabricated as per EFNARC code and experiments have been conducted with partial replacement of cement with fly ash. To determine the Specific requirements of self-Compacting Concrete (SCC) by using EFNARC code for the SCC Material its composition and its application. To fabricate the apparatus Suggested by EFNARC (European Federation of National Association Representing for Concrete) Tests Slump cone, L-box test, J-RING etc. To perform the Experiments on strength and behavior of Self-Compacting Concrete with partial replacement of cement with fly ash.

S.No.	18
Name of the guide	Mr. B.SHANMUKHA RAO
Name of the Student	V.SURESH (19A55A0149) P.MANIKANTA (19A55A0141) K.KUMAR (19A55A0129) S.RAMANA MURTHY (18A51A0178) K.PREM SAI RAJKIRAN (17A51A0198)
Project Title	EXPERIMENTAL STUDY ON REPLACEMENT OF GRANITE POWDER IN SUBGRADE SOIL IN FLEXIBLE PAVEMENTS

Abstract:

The practice of using waste Granite powder to modify the properties of poor soils has become increasingly important in Transportation engineering. In recent years, much research has been devoted to the effect of this waste Granite powder on soil properties. This study aims to address the influence of Granite powder on the performance of sub grade. Thus, soils mixed with different percentages i.e 10%, 15%, 20%, 25% granite powder were tested. The CBR test and standard proctor have been used to evaluate the performance of the soils mixed with granite powder. The statistical analysis illustrated that granite powder significantly enhanced the properties of the soils. The study concludes that an addition of 15% of granite powder to untreated (control) soils yields the most satisfactory results among other percentages of granite powder. The study recommends the use of granite powder in flexible pavement construction.

S.No.	19
Name of the guide	Dr. V. SOWJANYA VANI
Name of the Student	AASHU CHAUDHARY (18A51A0171) P. BHUVANA VENNELA (18A51A0143) N. LAXMAN RAO (18A51A0169) S. SOMESWARARAO (18A51A0150) CH. BHAGAVAN (18A51A0159) P. PRASHANTH (18A51A0140)
Project Title	AN EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE WITH QUARRY DUST IN FIRE AFFECTED CONCRETE

Abstract :
Quarry dust satisfies the reason behind the alternative material as a substitute for sand at very low cost. It even causes burden to dump the crusher dust at one place which causes environmental pollution. Mix design of concrete is done on weight basis, by adding 30 percentages of quarry dust instead of fine aggregate and concrete mixture is prepared based on it. The cubes are prepared for optimum percentage of quarry dust, demoulded after 24 hours and properly cured. The residual compressive strength of uncontrolled fire exposed to temperature is investigated in this research. The optimum percentage of replacement of Quarry dust is 30%. Three different state of testing are done in this process i.e, Air Test, Hot Test, Water Quenching Test. Air Test: Test this cubes after keeping the cubes for 24 hours at room temperature and to conduct the compression test in CTM. Hot Test: Test this cubes after the completion of burning process then to conduct the compression test in CTM. Water Quenching Test: Test this cubes after immersing the burned cube in the water and take that cube to the CTM to test for compressive strength test.

S.No.	20
Name of the guide	Mr. P .RAM PRASAD
Name of the Student	P.GOVINDA RAO (18A51A0139) P.PAVAN KUMAR (18A51A0147) V.SUDHEER (18A51A0152) S.BHARATH KUMAR (19A55A0145)
Project Title	THE INFLUENCE OF DIFFERENT ADDITIVES ON THE COMPRESSIVE AND FLEXURAL STRENGTH OF LIGHT WEIGHT FOAMED CUBES(LFC)

Abstract:
Foamed concrete was established for void filling and insulation purposes, but the interest is progressively changing towards structural characteristics in today's society. This paper describes the results of experimental study that have been performed to investigate the effects of different densities and additives on the on the mechanical properties foamed concrete. Additionally, control foamed concrete samples with different densities (600kg/m^3,1000kg/m^3) and different additives were prepared independently to study the impacts of specimens were prepared with locally available materials which are fly ash, foaming agent and jute fiber. This study has revealed that the compressive strength of foamed concrete was affected by its density due to the percentage of porosity. On the other hand, it was found that foamed concrete sample with coconut fiber yield better enhancement of the mechanical properties. Coconut fiber as reinforcement in foamed concrete is adequate and has high failure strain which can be able to provide a better compatibility between fibre sand matrix. Output from this research would give better understanding of the potential utilization of waste by-products and natural fibres in foamed concrete. Foamed concrete can be used as a new energy-conservation and environmental-protection building material, particularly suitable for the construction of monolithic building envelope in Malaysia.

S.No.	21
Name of the guide	Dr. H. RAMAMOHAN
Name of the Student	Y. NKHIL (18A51A0156) DEV RAJ HALDER (18A51A0162) J. ROHIT MOHAN (18A51A0164) UMA MAHESHWAR RAO (18A51A0176)
Project Title	DESIGN AND DEVELOPMENT OF A PROTOTYPE BIOGAS DIGESTER

Abstract:

Biomass is a versatile energy source that can be used for production of heat, power, transport fuels and biomaterials, apart from making a significant contribution to climate change mitigation. The terms biomass energy, bio energy and bio fuels cover any energy products derived from plant or animal or organic material. The work presented in this paper is an attempt towards utilization of abundantly available biomass in different forms around us. The source of biomass considered for this study is the kitchen waste from hostels in AITAM college from Tekkali. In our institute we have two hostels and all having their own individual mess, where daily a large amount of kitchen waste and food waste is obtained which can be utilized for better purposes. This presents the volume of biomass available at the said location and the effective ways of utilizing it. This work is to create an organic processing facility to generate biogas which will be more cost effective, eco-friendly, reduce landfill waste, generate a quality renewable fuel and reduce carbon dioxide and methane emissions. Overall, by constructing the biogas reactors in campus at the backyard of our hostels will be beneficial. Kitchen (food waste) was collected from boy's hostel mess as feedstock for reactor which works as anaerobic digester system to produce biogas energy. Biogas can be used as energy source for cooking and also for numerous purposes. But any possible application requires knowledge and information about design and construction of digester to generate biogas. The most reliable source of biomass conversion, i.e., Bio digester is chosen as an energy convertor. After conducting a survey about the quantity of the waste, an attempt is made to design a biogas digester which suits to nature and quantity of waste. Thus, it is planned to produce biogas from the bio digester and the same be used for cooking purpose in hostel, in effect contributing to saving of energy.

Faculty Publications

S.No.	Academic Year	SCOPUS	UGC Journals	Total Journals
1	2021-2022	02	05	07

Title	STUDY ON COMPRESSIVE STRENGTH CONCRETE AFTER REPLACING SAND WITH GRANITE POWDER
Author	Dr. Dinakar, Dr.V S Vani
Journal	International Journal of Creative Research Thoughts
Abstract	This paper incorporates the results of strength values of M30 concrete by changing the percentage of granite powder (GP) taken in place of sand. The percentage replacements of sand with granite powder are 0%, 10%, 20%, 30%, 40% and 50%. The parameter under study is compressive strength of concrete. Cement used is fly ash based Portland Pozzolana Cement. Experimental results indicated that the optimum percentage of replaced granite powder in sand is 30%.

Title	EXPERIMENTAL STUDY ON COMBINED EFFECT OF GLASS POWDER AND GLASS FIBRES AS PARTIAL REPLACEMENT OF FINE AGGREGATES AND CONCRETE
Author	V. Divya Sri
Journal	International Journal of Creative Research Thoughts
Abstract	Globally majority of countries in the world are worrying about declining of groundwater levels day by day. The one of the best solutions to improve the Groundwater levels is the artificial recharge of Groundwater. The estimation of runoff is very essential for the recharge of Groundwater. Exactly here a study has been made to estimate the runoff by Soil Conservation Service Curve Number (SCS-CN) method for Vignan's Institute of Information Technology (VIIT) campus, Visakhapatnam. In this study, the Land Use/Land cover (LU/LC)map of the study area has been extracted using GIS software from the Google Earth Remote Sensing imagery. The ground truth survey has been done using Global Position System (GPS) to update the missing data in the imagery. The Digital Elevation Model (DEM) of the study area has been generated using elevation data which was collected through dumpy level survey along with GPS. The soil texture map has been extracted from Soil Map which was bought from the National Bureau Soil Sciences (NBSS). The rainfall data of the study area has been collected from the nearest Gajuwaka Rain gauge station. The runoff of the study area has been estimated using the SCS-CN method by using the LU/LC, the Soil Texture map and rainfall data. In the present study the year wise total runoff varies from 30.352 mm to 209.445 mm of the study area. The average Annual rainfall of the study area is 1048.84 mm for the years 2009 to 2018. The average annual runoff volume of the study area for 10 years is 16293.48 Cu.M.The DEM map has been used to derive the mini watersheds to locate the Artificial Recharge locations to recharge the runoff to the Groundwater.

Title	EFFECT OF STRENGTH OF M-40 BY PARTIAL REPLACEMENT OF FA WITH STEEL WASTE & CEMENT WITH FLYASH
Author	V. Divya Sri
Journal	International Journal of Creative Research Thoughts
Abstract	Evaluation of slope stability using conventional limit equilibrium methods is very time consuming and repetitive, while the use of simplified approaches like regression analysis does not provide accurate estimation due to complexity and nonlinearities involved in the process. In such cases Artificial Neural Networks (ANNs) provide a better alternative. By proper training, an ANN with desirable transfer function and suitable number of hidden layers is able to well predict the nonlinearities and can provide accurate estimation of slope stability. However, performance of ANN in the past studies on slope stability prediction is found to be poor, while the prediction of relative importance of various slope contributing factors is not reliable. This is primarily due to the use of limited number of real field data cases and/or synthetic data covering limited parametric variations, in the training process. In the present study, an ANN has been trained using extensive synthetic dataset consisting of 15,000 cases covering wide range of soil properties & slope geometry, and then applied to the real field slopes to test its accuracy. The ANN presented here is showing significant improvement in assessing the Factor of Stability of slopes as compared to the ANN used in previous studies. The present ANN is also able to provide accurate estimation of Factor of Safety of real slopes comparable to any conventional limit equilibrium methods. Thus, ANN can be used for the estimation of Factor of Safety of real slopes, especially where it is required to estimate stability conditions rapidly such as landslide early warning, post-earthquake landslide activity, etc. Further, reliable estimates of relative importance of various contributing factors to slope stability have also been obtained, which have several applications.

Title	DEVELOPMENT AND SENSITIVITY ANALYSIS OF GROUND WATER USING WATER QUALITY INDEX-A CASE STUDY
Author	Dr. H. Ramamohan
Journal	IJEP, Kalpana Corporation
Abstract	Monitoring and managing ground water quality is of major environmental distress. Inadequate availability of surface water makes people dependent on groundwater to accomplish their needs. Hence it cannot be optimally used and sustained unless the quality is assessed. Quality assessment, can be done using water quality index (WQI), is a mathematical expression applied to transform large quantity of data into a single number which indicates the level of water quality. The present study is intended to evaluate the quality and sustainability of ground water for portable use during 2019-2020. The study evaluates the physico-chemical parameters, such as EC, TDS, pH, alkalinity, Ca, Fe, NH_4, NO_2, NO_3, Cl and PO_4 remained used for the assessment. Geographical coordinates were obtained using GPS receiver for continuous monitoring. The results revealed that the WQI of groundwater at the focused area is 28.84 and stipulates that the water is good for drinking purpose as comes under excellent category. The study delivers comprehensive depiction which is easily interpretable in lieu of the decision makers for better planning and management of water resources along with their development methods are elaborated.

Title	AN EXPERIMENTAL STUDY ON COMPRESSIVE STRENGTHS OF DIFFERENT TYPES OF CONCRETES BY NDT
Author	S. Ramlal
Journal	International Journal of Creative Research Thoughts
Abstract	The objective of this study is to estimate the compressive strength of concretes made by using chemical admixture poly carboxile ether (PCE SP) on OPC, PPC and PSC of three different water cement ratio's i.e., 0.55, 0.45, 0.35. The two most popular NDT methods-Ultrasonic pulse velocity (UPV) & Rebound hammer (RH) in assessing compressive strength of concrete. 150 X 150 X 150mm cubes, 150 X 300mm cylinders and 100 X 100 X 500mm prisms were prepared, cured and subjected to UPV & RH at the end of 28, 56, 90 days. The destructive (compressive strength) test are also done for same specimens after completion of non-destructive tests to compare the results. The conclusion drawn from the analysis, is that combination of rebound hammer and UPV methods is effective in assessing compressive strength of concrete. Hence it is recommended that for more accurate results, rebound hammer should be combined with UPV is preferred.

Title	EXPERIMENTAL STUDY ON CONCRETE OF GRADE M20 AND M25 BY USING OF RICE HUSK ASH AND WASTE GRANITE POWDER
Author	Mr. G. Gowri Sankara Rao
Journal	International Journal of Creative Research Thoughts
Abstract	The waste product from agricultural waste is Rice Husk Ash [RHA]. From crushing factories of granite, granite powder is obtained. This paper presents the performance of M20 and M40 grades of Concrete by replacing rice husk ash in cement and altering granite powder in fine aggregate. The varying percentage of Granite powder is from 0 to 50% and Rice Husk Ash is 20% by weight of cement. The compressive, split tensile and flexural strength is determined for one week, two weeks and four weeks cured samples. The research output from of the experimental investigations is mix with 20 % RHA and 40% granite powder waste in concrete generated better strength.

Title	IMPROVEMENT IN PREDICTION OF SLOPE STABILITY & RELATIVE IMPORTANCE FACTORS USING ANN
Author	Dr. M. Balendramouli
Journal	Geotechnical and Geological Engineering
Abstract	Determination of pullout force of Geo grid in sandy soil is one of the important aspects of reinforced earth structures construction. It can be determined using various methods, out of which experimental methods are most reliable. Performing experiments with standard equipment as well as with skilled technicians are required for an accurate result. For performing experiments preparation of soil samples similar to field condition, operating instruments will take a lot of time. To minimize this problem, an Artificial Neural Network (ANN) analysis is an alternative technique, which provides similar results to the experimental result. In the present study, An ANN model was developed for the determination of pullout force. For developing ANN model initially known input and output training data is required, for this purpose training is collected from the literature. Here Input parameters considered for training ANN was normal stress acting on geo grid (q), length of embedment (L), width of geogrid (W), Relative density of sand (D_r), average friction angle between soil and grid (δ), and output was pullout force (P). Apart from the prediction of pullout forces(P), ANN can also be used for the identification of the relative contribution of pullout force parameters q, L, W, Dr, δ using Garson algorithm technique. From this study, it was observed that normal stress acting on geo grid (q) is the most significant parameter.

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