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SREE DATTHA INSTITUTE OF ENGINEERING AND SCIENCE, HYDERABAD

DEPARTMENT OF CIVIL ENGINEERING

EDITORIAL BOARD

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DEPARTMENT OF CIVIL ENGINEERING PROFILE

The department of **Civil Engineering** is one of the most important departments of **Sree Dattha Institute of Engineering and Science (SDES)**. This department was established in the year 2001 and is presently offering Bachelor's Degree in Civil Engineering. The present intake for the Bachelor's program is 120 students. The department carries out a periodic review of its curricula to ensure concurrency and keep abreast with latest technologies and developments in science and technology.

SEMINAR ON POPULATION GROWTH, VARIATION AMONG NATIONS

A Seminar on "Population growth, variation among nations - population explosion - family welfare program" by Mr. Mohan Raj, Assistant Professor, was organized by Civil Engineering Department at CVR College of Engineering, Hyderabad on 10/07/16. Mr. Mohan Raj addressed our students at SDES and shared his knowledge. He made the students to know about the population growth and it's adverse effect to different nations development, and gave insight on family welfare program being conducted all across the country. He made the students interactive with a power point presentation and there was an excellent response from the students.

MR. MOHAN RAJ ADDRESSING THE STUDENTS OF SDES

SEMINAR ON "FERRO CEMENT READY MIX CONCRETE SIFCON-SHOTCRETE"

Mr.Manjunath, Assistant professor, organized by Civil Engineering Department on 10/07/16. Mr.Manjunath is an Assistant professor at Nalla Malla Reddy College Engineering ,Hyderabad. Mr.Manjunath addressed our students at SDES and shared his knowledge highlighting the importance of different concrete materials like Ready mix Concrete, SIFCON & Shotcrete and also the increase in use of ferro cement in construction industries and their impact on environment as compared to the conventional cement material.

MR. MANJUNATH DELIVERING THE LECTURE

WORKSHOP ON CROP WATER REQUIREMENT AND ESTIMATION OF CONSUMPTIVE USE OF WATER

This seminar was organized by Civil Engineering Department from 15/08/16 to 17/08/16 by Mr.K.M. Nayudu, Assistant professor at Vasavi college of Institute & Technology, Hyderabad. Mr.K.M. Nayudu addressed our students at SDES and shared his knowledge with our students. He made the students know the importance of advancement in technology of Crop cultivation & Irrigation which helps in identifying the requirement of water per capita that is required for crop growth

STUDENTS OF SDES ATTENDING THE SEMINAR

WORKSHOP ON DESIGN OF AXIALLY AND ECCENTRICALLY LOADED RECTANGULAR PAD AND SLOPED FOOTINGS

This event was organized by Civil Engineering Department from 29/08/16 to 31/08/16 by Mr.N Pratap Chillkuri, Assistant professor at MVSR college, Hyderabad. Mr. N Pratap Chillkuri addressed our students at SDES and shared his knowledge. He made the students know the Importance of advancement in technology of Design of axially and eccentrically loaded rectangular pad and sloped footings.

THE INTRODUCTION ABOUT THE TOPIC IS GIVEN TO THE STUDENTS

INDUSTRIAL VISIT TO HMWS & SB

The IV year students of civil engineering have been taken to "Hyderabad Metropolitan Water Supply & Sewerage Board" on 23/09/16 and they were made to understand the supply and quantity of water that is supplied throughout the Hyderabad city on a daily basis. It has really helped the students gain the practical knowledge.

A PICTURE TAKEN BY STUDENTS AT HMWS & SB

FACULTY CORNER

Article by:
N Suma, Assistant Professor, Department of Civil Engineering, SDES.

Title: Introducing Undergraduate Civil Engineers to Construction Technology.

The complex character of the construction industry together with global business pressures, regulatory demands and increasing client expectations require highly educated and skilled civil engineering graduates (Love et al. 2001). Consequently, sound knowledge and meaningful understanding of construction technology, 'its means and methods' is fundamental to the performance requirements of a civil engineer (Kuennen & Pocock 2003). Unlike alternative academic programs such as mathematics, the science disciplines (physics, chemistry and biology) and languages, the subject of civil engineering and by extension construction technology are largely absent from secondary education. As a result, the majority of first year undergraduates enrolling on civil engineering programs exhibit little or no basic appreciation of construction technology. This absence of prior knowledge and understanding raises unique challenges for first year undergraduate (UG) students and construction technology lecturers alike. Astonishingly, at the end of the second year over half of the undergraduates who can invert matrices, analyse beam stresses and even plot Mohr's circle cannot draw the basic components of a suspension bridge or a water supply system or a building or the different types of foundations and where they might be used. They do not understand the difference between a tunnel and a pipe, a valve and pump, an excavator and a bulldozer and so on.

Construction technology is neither static nor executed in a vacuum. Constant innovation and development in science and application arguably requires an emergent student culture of engineering curiosity and a capacity to reason and communicate visually (Ferguson 1992). Thus, it is imperative that construction technology is delivered in a manner that not only encourages engagement but also provides a sound intellectual foundation upon which students can refine their wider interests and understanding of the civil engineering profession. Connecting the theory of construction technology with industrial realism is widely thought to enhance student understanding (Bather 2011). More importantly, the relevance and role of construction technology in the career of a civil engineer begins to become embedded. This paper aims to explore the impact of a first year coursework designed to stimulate student interest in construction technology and promote on-going student engagement with a specialist, current affairs civil engineering publication. Impact on student expectations of a career in civil engineering is also reviewed. The paper is organised in a traditional format. The introduction identified the unique challenges facing both UG students and lecturer in the delivery of construction technology. Section two and three examines the introduction and teaching of construction technology within civil engineering courses. This is followed by a terse description of popular construction and civil engineering publications. Section five provides a more detailed introduction to the New Civil Engineer (NCE) publication. Section six outlines the methodology and method adopted in this study of introducing UG civil engineers to construction technology. The findings and subsequent discussion are explored in section seven. The conclusion reinforces the importance of connecting theory with educational practice and offers new insights in the delivery of construction technology on civil engineering undergraduate courses.

There are a variety of ways to introduce and teach construction technology studies to full-time UGs. Formal lectures supported by small group tutorials and recommended textbooks remain the mainstay for the majority of construction and civil engineering courses.However, 'critical thinking'and 'contextual engagement'with the topic arguably requires aholistic teaching strategy. This may include frequent site visits, guest lectures, small group work, graduate mentoring and/or contextual learning via carefully designed continuous assessment coursework.Alternative strategies for teaching construction technology have received academic interest (Pan 2010), most notably the educational value, benefit and challenges of construction site visits (Bather 2013). In stark contrast, the scholarly value and academic utility of construction/civil engineering magazines and journals has been largely ignored.This is surprising; many mainstream construction/civil engineering publications arguably provide a convenient and readily accessible conduit between the fundamental principles of construction technology (the theory) and 'live'and 'innovative'applications (the practice).Nowadays, holistic teaching strategies and encouraging on-going student engagement arguably extends beyond the basic principles, processes and practice of construction technology per se. In addition to the 'technological fit', there is also consideration of a'social-fit'. Introducing and persuading students to read and engage with mainstream construction/civil engineering publications would arguably assist with the process of'anticipatory socialization'(Sang et al. 2009). This would include familiarization with the language, customs, traditions and wider institutional norms that would later support industry integration, personal affinity and critical thinking. In short, construction/civil engineering magazines and journals provide readers with an insight in to the culture and context of industry 'membership'. Interestingly, the notion of anticipatory socialization is frequently overlooked in traditional educational frameworks but is becoming increasingly

Article by:
P Sai Ram Kishore, III - A , Department of Civil Engineering, SDES.

Title: Aerated Autoclaved Concrete (AAC) Blocks: Novel Material for Construction Industry

Abstract:
Autoclaved Aerated Concrete (AAC) is an ultra-light concrete masonry product. It can weigh as little as 1/5 as much as ordinary concrete due to its distinct cellular structure featuring millions of tiny pockets of trapped air. This cellular structure gives AAC a number of exceptional physical characteristics. AAC consists of basic materials that are widely available. These include sand, cement, lime, fly ash, gypsum, aluminium powder paste, water and an expansion agent. Silica sand, the raw material used in the greatest volume in AAC, is one of the world's most abundant natural resources. The finished product is up to five times the volume of the raw materials used, with an air content of 70% to 80% (depending on the required strength and density.) Due to this large increase in volume, AAC is very resource efficient. The high consumption of raw materials by the construction sector, results in chronic shortage of building materials and the associated environmental damage. In the last decade, construction industry has been conducting various researches on the utilization of easily available raw materials in construction. AAC is one of the materials which can cope up with the shortage of building raw materials and can produce a light weight, energy efficient and environmentally friendly concrete. This study deals with the introduction to the process of the autoclaved aerated concrete and its advantages compared to the normal concrete.

Introduction:
Since Roman times, lightweight aggregates and foaming agents have been employed to reduce the weight of concrete. However, unlike these foamed or light aggregate mixes, true aerated concrete relies on the alkaline binder (lime & cement) reacting with an acid to release gases, which remain entrained in the material. This is not a "new" innovation. Autoclaved Aerated Concrete has been around for over 80 years. Invented in 1923, AAC has been used extensively in Europe and Asia. It comprises over 40% of all construction in the United Kingdom and 60% in Germany.

AAC Blocks – Indian Scenario:
AAC consists of basic materials that are widely available. These include sand, cement, lime, gypsum, water and an expansion agent. Silica sand, the raw material used in the greatest volume in AAC, is one of the world's most abundant natural resources. At present there are 31 manufacturing plants in India are working with heavy concentration near Surat.
Gujarat: production capacity 2000 cu. m day against requirement of 3000 cu. m day (Surat has 3-4 plants). In Ahmedabad, 1 cu. m of AAC blocks costs Rs. 3200-3500 while 1 cu. m of clay bricks would cost Rs. 2400-2700. In spite of the price difference, construction industry wants to use AAC blocks due to inherent advantages. It is more used in Mumbai, Banglore, Chennai and Hubli.

Advantages of AAC:
- Lightweight saves cost and energy in transportation as well as labour. (550 kg/m3 - half of weight of light weight aggregate blocks).
- It has one of the highest hourly fire resistance ratings per inch of any building material currently used in home building. This makes it an ideal choice for fire protection around steel columns and steel beams and in the construction of shaft walls, stairwells, corridors and firewalls.
- The process of manufacturing AAC uses only natural materials and produces no pollutants or by-products. AAC is totally free of toxic or harmful substances. Low energy is required in production, low raw material consumption, ease of use in construction, high energy efficiency, better indoor air quality and recycling ability add up to make AAC a very environmentally friendly building material and system.
- It does not promote mold growth.
- Its noise reduction co-efficient is more than twice that of a standard concrete block wall and over 7 times that of ordinary concrete.
- It can easily cut to any required shape, can be sawed, nailed and drilled easily even than wood.
- With good resistance to sulphate attack.
- Walls can be left exposed without plaster.
- No curing is required, labour cost is saved hence.