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Innovative Informative Educative

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AIM BEYOND THE HORIZON

Dr. Mahalingam College of Engineering and Technology
Department of Civil Engineering

VISIION AND MISION OF THE INSTITUTION

Vision

We develop a globally competitive workforce and entrepreneurs

Mission

Dr. Mahalingam College of Engineering and Technology, Pollachi endeavors to impart high quality, competency based technical education in Engineering and Technology to the younger generation with the required skills and abilities to face the challenging needs of the industry around the globe. This institution is also striving hard to attain a unique status in the international level by means of infrastructure, state-of-the-art computer facilities and techniques

VISION AND MISSION OF THE DEPARTMENT

VISION

To develop Competent Civil Engineers to meet the infrastructure challenges of India and the world.

MISSION

- To become one of the reputed departments offering Civil Engineering Program in the country.
- To produce excellent engineers to cope up with the changes through dynamic, innovative and flexible curriculum.
- To provide a conducive environment for teaching & learning and to develop leaders with effective communication skills.
- To conduct quality research driven by industry & societal needs and provide affordable engineering solutions.

The Programme Educational Objectives (PEOs) of our department are,

The Programme Educational Objectives (PEOs) of our department are,

The Graduate will

PEO 1 Technical Expertise: Have successful professional careers dealing with analysis, design and management of construction projects globally.

PEO 2 Lifelong learning: Exhibit attitude, professionalism, ability to communicate with team members and adapt to the latest trends by engaging themselves in continuous learning.

PEO 3 Ethics: Ethically apply their engineering knowledge and skills considering, societal, economic and environmental factors.

PROGRAMME OUTCOMES (POs)

The graduates of Civil Engineering Programme will be able to:

PO1.Engineering knowledge: Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization in the field of Civil Engineering.

PO2. Problem analysis: Identify, formulate, analyse and solve complex problems in construction industries using principles of mathematics, natural sciences and engineering sciences.

PO3. Design/development of solutions: Design a solution for complex civil engineering problems and design system processes to meet specific needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PO4. Conduct investigations of complex problems: Conduct investigations of complex problems including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusion.

PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Environment and sustainability: Understanding the impact of engineering solutions in social environment and demonstrate the knowledge for sustainable expansion.

PO8. Ethics: Apply ethical principles and commit to professional ethics and the norms of engineering practices.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.

PO10. Communication: Communicate with engineers and society to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions related to civil engineering professionals.

PO11. Project management and finance: Demonstrate and apply the knowledge of engineering and management principles to one's own work, as a team leader or a member to manage project in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the ability to engage in independent and life-long learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1. Design process:Design the fundamental elements of civil engineering systems, system components and processes considering safety, quality and cost consideration.

PSO2. Quality and standards:Able to plan and prepare design and construction documents such as specifications, contracts, engineering drawings and construction schedules

Conserving Water with Agricultural Hydrogels

Agricultural hydrogels are synthetic polymers generally made from petroleum products. They absorb many times their weight in water, and can be distributed into dry regions in order to improve the soil's ability to absorb water. Learn how they're made and how they can be used.

Agricultural hydrogels can change the physical properties of soils by
- Increasing their capacity to hold water
- Reducing erosion and runoff
- Reduce frequency of irrigation
- Increase the efficiency of the water being used
- Increase soil permeability and infiltration
- Reduce the tendency of the soil to get compacted
- Help plant performance

The high cost of these hydrogels has been an inhibiting factor that has drastically affected their universal use. Unless costs are brought down, its use will get limited to government and other well funded organizations, leaving out the private farmers and agriculturists who can benefit from its use.

- How Agricultural Hydrogels are Made

Hydrogel polymers are made from petroleum based products, but recent research has enable their manufacture using soy oil. These hydrogels are more biodegradable and therefore kinder to the environment.

Agricultural hydrogels are referred to as water retention granules because they swell to many times their original size when they come in contact with water. Two broad classes of hydrogels are soluble and insoluble. The soluble variety is used to reduce irrigation erosion in fields. The insoluble variety is used in gardens, nurseries and landscapes to reduce frequency of watering.

Hydrogels are polymers that are physically or chemically cross linked and can absorb large amounts of water while retaining their shape. They also do not dissolve with the ingress of water and the large swelling due to the water does not affect the mechanical properties of the hydrogel. Hydrogels can hold an amount of water that is many times its own weight .This characteristic helps it to store water which can include nutrients. This water is then released slowly negating the evaporation process. This is especially useful in arid lands.

Hydrogels commonly used in agriculture can absorb between 400 and 1500 grams of water for every gram of hydrogel. So using these hydrogels in places where post plantation irrigation has its limitations, the hydrogels can store large quantities of water and make it available to the plantation so that it has time to establish itself.

S ABINAYA (10BCE101)

What is an Environmental Impact Assessment?

An Environmental Impact Assessment is a formal method of judging the impact that any new developmental project would have on the environment and its constituents. This can include changes that the project would create in the physical aspects of existing geography, chemical changes to the atmosphere including air and water, biological changes that affect plant, animal and human life, cultural impact of a project on the society in the area, and other socio-economic effects that the project can have.

Such an assessment allows problems to be foreseen, so that the design and planning of the projects is modified to reduce any negative effects. It is now fashionable to build green buildings which have a positive effect on the environment.

There is historical precedent for the now mandatory Environmental Impact Assessments (EIA). Past efforts by governments have resulted in bans on activities that caused noxious odors, garbage dumps were positioned at places far away from habitation, and commercial activities were restricted to town centers.

Objectives of Environmental Impact Assessment

The objective of an EIA is to predict the environmental impact project would have on all aspects of the environment. Once this is done, a study has to be made to see if the impacts can be reduced in any way. The project has then to be modified to suit the local environment and all predictions and likely options presented to decision makers for final decisions gain a better understanding of EIA by understanding how any typical project can affect the environment of a particular area.

The alignment of the road may require that certain lands have to be leveled or new embankments created. Cutting of the land and the new embankments would affect the geography of the area and probably upset its drainage pattern. This would require re-planning existing methods of treating the run-off and could cause existing watercourses to be modified. The new road may require the removal of existing green cover and this could affect the living conditions in that area. The traffic going through that area can cause pollution problems from vehicles which also includes an increase in sound pollution. The emissions from the vehicles can affect already existing atmospheric pollutants which in turn could affect human health, animal health and affect greenery in the area. The road may affect existing structures in the area which may have to be removed and can cause changes in the economic wellbeing of the persons who are using those structures.

For any environmental impact assessment, complete data on all these aspects as they are at present has to be made so that any changes can be reasonably judged to existing standards required for good living. The deterioration or increase in these living standards has then to be highlighted by the EIA before any final decision on the project can be undertaken.Before a building can be built, an environmental impact assessment needs to be performed to determine how the endeavor will affect the environment. This allows planners to make their projects more environmentally friendly and acceptable to all involved.

S KARTHIKA (10BCE203)

Students Contribution to Extra Curricular Activities

V.B.Nithesh	Photography III Prize	Kongu Engineering College
K.Vignesh	TechTalk I Prize	Sona College of Technology.
N.Lakshmi Priya	Badminton I Prize	Sri Krishna College of Engineering.
A.Karthikeyan	NCC Camp	Puducherry
S.Ramesh	NCC Camp	Chennai
N.MuraliMohan	NCC Camp	Puducherry
R.Vignesh	NCC Camp	Coimbatore

SURVEYING NOW AND THEN

Current and Future Advances in Surveying

The role of a surveyor is now extremely significant. A growing number of disciplines including mapping, navigation, and Global Positioning Systems concern the modern surveyor. Advanced surveying techniques are more accurate, faster, and reliable than traditional methods, with new technologies emerg

What Is Surveying

In the broadest sense, surveying is gathering information about a topic. With regard to geography, surveying is the field of gathering information about land- such as boundaries, areas and elevations-using geometric measurements. Surveying is typically in reference to earth landforms and structures, but is also valid for lunar surfaces and other terrestrial planets.

Surveying is an essential science for the fields of design and construction. Boundary surveys apprise people regarding the geographical location and limits of their property, and title surveys are an important part of the real estate business. Land topography maps are required for the preparation of detailed engineering designs. The plotting of river foundations is necessary for dredging. Delineation of corridors through survey techniques precedes the construction of roads, tunnels, airports, and pipelines.

Geomatics

Geomatics has redefined the surveying technology of the last quarter of the twentieth century, and it is still undergoing revolutionary progress. This science encompasses a large variety of earth mapping techniques, including Global Navigation Satellite Systems, remote sensing, and photogrammetry. Geomatics is a progressive field that integrates acquirement, modeling, study and managing of data.water bodies.

The fast progression and extensive operation of geomatics is due to the advancement in computer technology, software engineering, and computer science. Space sensing technologies have also contributed immensely in the growth of geomatics. Several universities have gone so far as to replace the names of their survey departments with geomatics or geomatic engineering.

Future of Surveying

With advancements in technology, new surveying equipment and techniques are developing. Current advancements are making the science of surveying more valuable, accurate, and comprehensive than ever. For example, the use of GPS in modern surveying methods is one of the radical changes influencing land measurements. GPS is a breakthrough technology in surveying because it is extremely precise, fast, and reliableFurthermore, the role of the surveyor is changing as technology expands and geospatial data becomes available to anyone through programs such as Google Earth. A surveyor is no longer necessary for many basic data acquisition tasks … because the data already exists. Instead, the modern surveyor needs skills in geospatial data management and analysis.

Challenges for the Future Surveyor

The technical boundaries of the surveying in history are no longer applicable. With current technologies, measurements and estimation have become easy. Subjects of rising significance are the formation and managing of data and, subsequently, data application. The contemporary surveyor's challenges include the induction of modern dominant technologies such as airborne scanning, terrestrial scanning, satellites that create high-resolution images, and an increasing number of satellites.

As surveyors continue to work, they work with an increasingly diverse collection of professionals. The state and private sector is recognizing the economic significance of this discipline and that it has huge future growth prospects. It is an exciting time for the discipline, and surveyors have to adapt themselves rapidly to the latest technologies if they wish to remain valuable in the field of surveying.

S ASHOK KUMAR (11BCE005)

Staffs Contribution for the Department

Mrs.C.Latha AP (SS) / Civil Ms.M.R.Lavanya AP/ Civil Mr.P.Gowthamramkarthik AP/ Civil Ms.A.Dhivya AP/ Civil Mr.S.Syed Masoodh AP/ Civil	Two Weeks Main Workshop on "Fluid Mechanics" by IIT, Kharagpur.
Dr.G.Jaisankar. Prof. and Head of the Dept./Civil Mr.S. Krishna Kumar AP/ Civil	"Teaching Learning Series Seminar"
S.Krishnakumar, AP M.Ranjitham,AP	Four days workshop on " Use of ICT in education for online and blended learning"
Dr. G. Jaisankar, Prof & Head Dr. R. Venkatasubramani, Prof Mr. A. Manikandan, AP	Professional Delivery Systems in Indian Construction Industry – a Futuristic View" – 2 days Conference
Dr. G. Jaisankar. Prof. and Head Dept. of Civil Engg.	International Conference on "Energy Technology, Power Engineering and Environmental Sustainability".

TOPIC	RESOURCE PERSON
Guest lecture on "Green Construction Chemicals"	Ms. IshitaManjrekar Senior Associates, Sunanda Specialty Coatings Pvt. Ltd, Mumbai.
Guest lecture on "Water Resources Management"	Dr. P. K. Suresh Consultant, Department of Ocean Engineering, IIT, Madras
Guest lecture on "Eco – Friendly Low Embodied Energy Cement from Industrial by – product for Green Construction" ,	Dr. N. P. Rajamane, Head, Centre for Advanced Concrete Research(CACR), SRM university

ASSOCIATION ACTIVITIES

TOPIC	RESOURCE PERSON
Guest lecture on "A New Chemical Process for Production of Steel in Very Low Cement Matrix"	Mr. M. Dhinesh, Scientific Officer, Centre for Advanced Concrete Research(CACR), SRM university, Kancheepuram
Guest lecture on "Acres Are Diamonds"	Dr. T. Rangaswamy Managing Director, Rangaswamy & Associates, USA

LOCATING THE RIGHT PLACE FOR VERTICAL GARDENING

Locating the right spot for a vertical garden is rather simple, as long as the space meets the aforementioned criteria. Interior vertical gardens are ideal for hotel and corporate lobbies, as well as restaurants and retail stores. Indoor vertical gardens can also provide a sense of unity with nature for those who may not be able to go outside frequently, such as people staying in hospitals and nursing homes. Offices and school buildings are also ideal locations for interior vertical gardens.

Since maintenance of exterior vertical gardens is a little easier, the ideal locations for exterior vertical gardens are many. Basically any vertical space that could use a little face-lift (and receives adequate sunlight) can benefit from the installation of a vertical garden.

LOCATING THE RIGHT PLACE FOR VERTICAL GARDENING

The cost of a commercial exterior vertical garden generally ranges from $60–$160 per square foot, according to Urban Habitat Chicago. This cost includes the plants, internal irrigation, and installation but does not include associated maintenance costs. Internal vertical gardens are usually more costly, due to the need to waterproof the area and to design a system that will not damage the surrounding interior spaces. For both interior and exterior vertical gardens, the more elaborate the system and the design, the higher the cost.

T LALITHA (12BCE024)
MUTHU BHARATHI (12BCE033)

Students Participation in Activities

Karthik rajaram T.Rahul	Mix design contest	15th FUTURA,national level technical symposium, Bannari Amman institute of technology.
T.G.Kaviarasu V.Srivignesh	CAD calibre	LUSTRANS 2K14, national level technical symposium, Coimbatore Institution of Technology.
T.Rahul R.Dilip Kumar N.Murali Mohan	Paper presentation	ADAGE 2K14, national level technical symposium, IRTT,Erode.
V.B.Nitheesh	Photography	CEANS'14, Kongu Engineering College, perundurai, Erode.
V.Gokilamani M.Karthik Pandi	Quiz	ADAGE 2K14, national level technical symposium, IRTT,Erode.
Karthik Rajaram P.Kishore Kumar	Confloat	CEANS'14, Kongu Engineering College, perundurai, Erode.
Sri Ram. R.K. Senthur Maruthu Pandi	Paper presentation	SRILEAD'14, national level technical symposium, Sri Rananganathar Institute of Engineering and Technology,

LEED SYSTEM FOR ENERGY EFFICIENT

The LEED system for energy efficient building construction, maintenance, and operation has led to renewed interest in roof gardens and greenery. Several important considerations should be examined for retrofit and new construction of such systems.

For over 70 years the concept of placing live ecosystems on top of buildings in the U.S. has been pursued as an environmentally friendly alternative to traditional roofing materials. These systems range from discreet box gardens covering minimal surface area to eave-to-eave plots covering the entire roof.

The idea of planting a live roof actually originated in Europe long ago, mainly as a cheaper and more readily available alternative to more robust roofing systems at the time. And while the benefits and maintenance of these “living roofs" is the subject of much discussion, the successful construction of these systems requires attention to several factors: material specifications, structural loads, and water handling

In order to sustain living plants, the planted roof must have soil. Just like any other planted area, the soil must cont ain nutrients and have proper aeration and water. The construction materials selected for such a system therefore must be able to resist exposure to soil chemistry and fertilizers, physical abrasion from tilling, and contact with insects, animals, roots and soil, and to the constant presence of moisture. In addition, failure of the selected roofing materials may require excavation which would be a considerable undertaking for full roof plantings.

Most traditional roofing materials are not formulated for constant contact with soil chemistry, and are designed to shed moisture and spend at least part of their life cycle in a dry, well ventilated state. Membranes, insulation, drains, and containment supports should then be selected based on zero maintenance, below grade specifications such as those used beneath pavements, foundations, and patios as opposed to standard roofing criteria

Structural Loads - Weight of Green Rooftops

One cubic foot of dry, agricultural dirt or loam typically used for a “green" roof weighs between 75 and 81 pounds. Saturated with water the weight can increase by as much as 35%, to around 100 to 110 pounds per cubic foot. This means 100 square feet of planted roof containing soil 6 inches deep can add over 5000 pounds of dead load to the roof structure, roughly 50 p.s.f. or more.

Four discrete planter boxes or containers 6 feet long, 2 feet wide with 1 foot depth of soil applies a similar load. Add a blocked water drain and the weight starts adding up at the rate of 5 p.s.f per inch of standing water. Add a conservative snow load allowance for flat roofs of 15 p.s.f., and the design criteria can easily exceed 70 p.s.f. dead load. For a modest building using 2500 sq.ft. of living roof construction this could translate to 175,000 pounds of dead load on the roof top. Constructed in a seismic zone this can become an unexpectedly live load directly above the heads of the building occupants.

Watering and Drainage

Live plants not only need water to maintain growth, but need adequate drainage to prevent disease and rot. A living roof also requires excellent drainage to prevent a flood event, which could have disastrous consequences at rooftop level. Again, drains designed for below grade applications with constant soil contact and zero maintenance are required as opposed to conventional roof drainage systems. A layer of agricultural lightweight aggregate or pea gravel covered with a suitable filter fabric is usually adequate. There are also proprietary formed drain systems available, such as synthetic fiber mats and cellular matrices, which are thinner, lighter, and can increase drainage rates but usually at higher cost. Additionally the drainage design should incorporate several collection points serving a given area in case one drain becomes clogged. Finally, active irrigation needs to be closely monitored to avoid excess water weight as mentioned previousl

N KASTHURI (11BCE020)
S KARTHIKA (10BCE203)

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