

SANKALAN (संकलन)



Vision of the Department

To prepare civil engineering professionals with an ability to develop designs and initiate innovative thoughts focusing on infrastructural needs with a social responsibility.

Mission of the Department

M1: To enhance technical skills among the students by adopting effective teaching-learning processes.

M2: To impart knowledge of emerging infrastructural needs of the society for developing eco-friendly designs.

M3: To inculcate technical competencies among the students to enable them to meet present and future challenges.

M4: To prepare for life-long learning with professional ethical practices.

Editorial Board

Faculty

Dr. G. Manohar

Professor & Head, - Editor

T. Raja Ramanna - Co-Ordinator

M. Srividya - Co-Ordinator

P.Prashanth - Co-Ordinator

Students:

1. Megha Bansal B.E IV semester

2. V. Priyanka B.E IV semester

3 . Karthik B.E VI semester

Inside this issue:

Department Activities

Faculty Activities

Student Achievements

Student Activities

Article

Gallery

MATRUSRI ENGINEERING COLLEGE

Approved by AICTE & Affiliated to Osmania University
16-1-486,Saidabad,Hyderabad-500059

DEPARTMENT ACTIVITIES

1. Organized **Survey camp** for B.E VI semester students from 06/02/2019-10/02/2019
2. Organized a seminar on “ **Role of youth in Nation Building** “ by **Swami Bodhamayananda Ji, Director, VIHE, R.K Math** for B.E II Semester students on 25th Feb 2019
3. Organized a visit to **Survey of India, Uppal** for B.E IV semester students on 28/02/2019 on the occasion of ‘**National Science Day**’
4. A lecture to the B.E VI semester students on ‘**Mix Design**’ by **Dr.M.Venugopal** on 05/03/2019 at MECS.
5. Inauguration of NAC Student Chapter and Orientation lecture by **Prof Ch.Ravi Kumar** on 06/03/2019 at MECS.
6. Organized an **Industrial visit** to **Kaleshwaram Project** for B.E VI semester students from 07/03/2019-08/03/2019.

Organized following visits as a part of one week summer Internship Program for B.E III semester students:

1. “**RDC Ready mix plant, Nacharam**” on 26/06/2019 .
2. “**National Academy of Construction**” on 27/06/2019.
3. “**Sewage Treatment Plant, Amberpet**” on 29/06/2019.

FACULTY ACTIVITIES

1. **P.Ashveen kumar, B.Udaya sree, S.Lokeswari, T.Rajaramanna ,M.Srividya** attended a workshop on ‘**Development of lab Instruction and Manual**’ from 4/02/2019-08/02/2019 at MECS, Hyderabad.
2. **S.Lokeswari , T.Rajaramanna, P.Dhanamma, P.Prashanth, P.Bharat kumar** attended a one day workshop on ‘**Moodle learning system**’ on 15/03/2019 at MECS Hyderabad.
3. **P.Prashanth** attended a workshop on ‘**Water and Sanitation Management**’ on 19/03/2019-20/03/2019 at **Visweswaraiah Bhavan, Khairthabad.**
4. **P.Bharat kumar** attended ‘**South India Level Research scholars**’ conference on 16/02/2019-17/02/2019 at NIMSME.

5. **T.Rajaramanna, P.Prashanth** attended FDP program on '**Advances in Computational Fluid Dynamics: Methods and Applications using MAT lab and Ansys-Fluent at NIT Warangal** from 06/05/2019-11/05/2019.

6. **M.Pratibha** attended three weeks **Induction Training program Teaching learning center (MHRD)** from 20/05/2019-08/06/2019 at **IIT Hyderabad**.

FACULTY EXTRACURRICULAR ACTIVITIES

1. **Sri T.Raja Ramanna** as a co-ordinator conducted baseline household survey at **Gaddamallaiah guda village** for the program **Unnat Bharat Abhiyan** on 16/02/2019.
2. **Sri T.Raja Ramanna** as a co-ordinator conducted baseline household survey at **Chedudu** village for the program **Unnat Bharat Abhiyan** on 09/03/2019.

STUDENT ACHIEVEMENTS

- **K. Saikiran (1608-15-732-302)** secured All India **132 rank** in **GATE-2019** Examination.
- **Mr.Chaitanyahari Amoji** B.E IV semester student secured **Gold medal** (Junior level) and **Silver medal** (Senior level) in Hyderabad District **Weight lifting championship 2018-2019** held at L.B stadium on 03-02-2019.
- B.E IV semester students **V.Priyanka, P.Aishwarya, K.Karhikeshwari** participated in **Two day entrepreneurship workshop "IMPRESARIO-2019"** and got appreciation certificate and **cash prize worth Rs1000/-** held at **CBIT** engineering college on 18/02/2019 and 19/02/2019.

STUDENT ACTIVITIES

- 1) B.E. IV Semester students visited Survey of India, Uppal as part of National Science day Celebrations.
- 2) Around 30 students from IV and VI semester participated as volunteers in collection of baseline household survey at **Gaddamallaiah guda** village on 16/02/2019 as part of **Unnat Bharat Abhiyan program**.
- 3) B.E III semester students visited **RDC Readymix plant, Nacharam, National Academy of Construction, Hitech city, and Sewage plant, Amberpet** as part of summer Internship program. On 26/6/2019, 27/06/2019 and 29/06/2019 respectively.

SELF- HEALING CONCRETE

Cracks in concrete are a common phenomenon due to the relatively low tensile strength. Durability of concrete is impaired by these cracks since they provide an easy path for the transportation of liquids and gasses that potentially contain harmful substances. If micro-cracks grow and reach the reinforcement, not only the concrete itself may be attacked, but also the reinforcement will be corroded. Therefore, it is important to control the crack width and to heal the cracks as soon as possible. Since the cost involved for maintenance and repair of concrete structures are usually high, this research focuses on the development of self-healing concrete. Self-healing of cracks in concrete would contribute to a longer service life of concrete structures and would make the material not only more durable but also more sustainable.

Concrete has an autogenous healing capacity as unhydrated cement is present in the matrix. When water contacts the unhydrated cement, further hydration occurs. . These two mechanisms, however, may only heal small cracks. Cracks can be healed by using calcium carbonate precipitating micro-organisms. These organisms are embedded in the concrete matrix after immobilization on diatomaceous earth in microcapsules or in SAP, and will start the precipitation of CaCO_3 once a crack occurs. Through this process the bacterial cell will be coated with a layer of calcium carbonate, resulting in crack filling

One of the research programs considers the use of encapsulated polymers in order to obtain self-healing of concrete cracks. When a crack appears, the capsules break and the content is released. Due to capillary action, the agent will flow into the crack. After reaction, the crack faces are bonded together and the crack is thus healed.

Depending on the required regain in properties, different healing agents have been encapsulated. In order to reduce the water permeability of cracked concrete, polyurethane is provided inside the capsules.

When strength regain is a more important issue, methyl methacrylate is encapsulated. For structures where the aesthetic aspect is important, water repellent agents can be encapsulated. As encapsulation material brittle glass or ceramic tubes have been used.

In the case of dynamic cracks in structures under cyclic load (e.g. due to traffic or temperature variations), encapsulated elastic polymers can be used. While cracks healed with CaCO_3 would re-open upon reloading and new cracks would form in the case of rigid polymers, elastic polymers should be able to bridge cracks of increasing width. Thus, for this particular application, strength regain is not as important as an effective sealing of cracks. Adhesive properties and strain capacity of elastic polymeric healing agents in service are assessed. While fly-ash and blast-furnace slag concrete seem to be inferior with regard to the early age microstructure and strength development, their self-healing capability can be much higher, precisely because of the low hydration degree of the slag and fly-ash particles. Upon cracking, the unreacted particles can be activated again in order to close the crack and to regain water impermeability and strength. The suitability of different types of alkali-activators Standard procedures are being developed in order to compare the effectiveness of different self-healing approaches against one another. The aim of these procedures is to analyse the regain in liquid tightness and mechanical properties.



By
V. Priyanka
B.E IV semester

GALLERY



SURVEYING CAMP



SURVEY OF INDIA



NAC STUDENT CHAPTER INAGURATION

GALLERY

KALESWARAM TOUR



ANNARAM PUMP HOUSE



MEDIGADDA BARRAGE

UNNAT BHARAT ABHIYAN PROGRAM



SUMMER INTERNSHIP PROGRAM



RDC Ready mix plant, Nacharam, Hyd



National Academy of Construction, Hitech city, Hyd



Sewage Treatment Plant, Amberpet” Hyd