

## STAFF SELF APPRAISAL REPORT

2020-2021

## KSSEM

| Field  | Data   | SCORE |
|--|--|-------|
| Name   | NAVEENA M.P  |       |
| Present Address, Mob.No., e-mail id.   | G1 ELITE PATRIKOR 10 <sup>th</sup> CROSS BALAJI LAYOUT ,MALTHAHALLI NAGRABHAVI BANGALORE-560056<br>9071135404,mpsnaveena@gmail.com   | ---   |
| Age and Date of Birth  | 32, 12-08-1989   |       |
| Qualification  | M.Tech, (Ph.D)   |       |
| Designation and Department   | Asst.Professor (Civil)   |       |
| Teaching Experience (After PG)   | 5  |       |
| Other Experience(If any)   | Industry -2 years  |       |
| List of Subjects Taught till date (use separate sheet if necessary)  |  |       |
| *Subjects taught in the Assessment Year and percentage pass (10marks for each x Percentage) If Online please indicate. | 1. Design of Masonry structures -100%<br>2. Building Materials and Construction Technology -95%<br>3.Design of Pre-stressed Concrete Elements-100%<br>4. Mechanics of Deformable Bodies -91.6% | 39/40 |
| Details of UG Projects Guided (5 marks/ project guided) Online   | 1.Experimental study Geopolymer Paver blocks   | 5/10  |
| Details of PG Projects Guided (5 marks/ project guided) Only for MBA   | 1. Analysis of Beam at elevated temperature using Ansys.<br>2. Experimental study on AAS blocks.   | 10/10 |
| Percentage of Online classes held ( No. of classes taken/no. of classes allocated x 5)                                 | 100 Percentage   | 5/5   |
| Student Feedback for Online classes. (Av.Percentage x 5 marks)   | 90 Percentage  | 4.5/5 |
| Details of Industrial Visits arranged. (2marks/visit) Max 5 marks.   | NOT APPLICABLE FOR CURRENT YEAR  |       |
| Number of FDPs attended since  |  | --    |



\*Marks to be awarded on for subjects for which end exam was conducted

|  |   |       |
|--|---|-------|
| Details of students mentored during current assessment year.   |   | --    |
| Details of Participation in VTU Bodies (2 Marks)   | Sitting squad   | 2/2   |
| Details on Examination related Activity (2marks each)  | 1. Practical Exams<br>2. Conduction of Theory exams<br>3. Paper Setting<br>4. Evaluation  | 8/8   |
| List of FDPs attended during the Assessment year (5 marks each) (Attach Certificate copies)  | 1.Sustainable and Strengthening of low cost Housing for Rural India<br><br>2. Sustainable Design with Pre-Engineered Techniques _An approach  | 10/10 |
| Financial Assistance received during current year for attending FDPs   | Rs.   | --    |
| Status of Ph.D.<br>[Attach proof for each stage]<br>(This can be claimed only once during a life time after the PhD is awarded)<br>[Attach proof for every claim]<br><br>Ph.D. Completed – 10 marks. | 1. Experimentation/Data Collection in completed (1 mark)<br>2. Comprehensive viva voce completed (1 mark)<br>3. Appeared for Course work exams (1 mark)<br>4. Applied for registration formalities (1 mark)<br>5. Identified Guide/Research Centre and preparing research Proposal ( 1mark.)<br>6. Not thought of pursuing Ph.D. (zero) | 5/10  |
| Research Publications: (5 marks each)<br>[Attach copies of Title Page]   | 1. Investigations of Common Effluent Treatment Plant Sludge based Controlled Low-Strength Material<br><br>2. Experimental Studies on Controlled Low Strength Materials Using Black Cotton Soils and Comparison of Results with Taguchi Model  | 10/10 |
| Seminars / Workshops / Conferences attended (5 Marks each) [Attach Certificate Copies]   | 1. Intellectual Property Rights in Research and Innovations.  | 5/10  |
| Financial Assistance received during current year  | Rs.   | --    |
| Registered as Research Guide   | No  |       |



|   |   |                  |
|---|---|------------------|
| (Reasons for not registering)   |   |                  |
| Research Scholars registered with details   | Yes / No<br>If Yes, 5 marks   | /5               |
| Details of Patents Applied for (If any) One application 5 marks                                       | Feasibility Study on Geopolymer aggregates  | 5/5              |
| Academic Programs organized and supported during current year.<br>(FDP/Workshop/Seminar / Conference) | Supported for Inplant Training for Diploma students   | 5/5              |
| Details of programs attended for skill development like MOOCs, MOODLES, COURSERA, NPTEL and others    | Advanced Concrete Technology _NPTEL   | 5/5              |
| Details of Utilization of NPTEL and other Online materials for augmenting own lectures.               | <a href="https://nptel.ac.in/courses/105/106/10510">https://nptel.ac.in/courses/105/106/10510</a><br>NPTEL –Design of PSC | 5/5              |
| Details of Project Proposal submitted during the current year. (At least one)                         | Structural Health Monitoring using Non-Destructive Techniques and Prediction of Damage detection using Machine learning.  | 5/5              |
| Details of Project Funds Received.  | Rs.   | /5               |
| Consultancy Revenue Generated   | Rs.   | /5               |
| Details of Participation in cultural events during the current year                                   | NOT APPLICABLE FOR CURRENT YEAR   |                  |
| Additional Responsibilities in the Department/ College<br>Example: Head, Coordinator etc.             | 1) NAAC Criteria 1 Coordinator<br>2) Website Coordinator<br>3) Test coordinator   | 10               |
| Details of Live Membership for Professional Bodies (IEEE CSI SEA ISTE .....                           | ICI _Indian concrete Institute  | 5/5              |
| COVID TASK FORCE Responsibilities.<br>(If any) Please mention your role.                              | Invigilation duty for Covid student Examination hall.   | 3/5              |
| Contribution towards Branding, Admissions, etc  | Telephone calling duty  | 5/10             |
| <b>TOTAL</b>  |   | <b>151.5/190</b> |

Date: 25/09/2021

*I. R. Rao*

*[Signature]*  
Signature of faculty



**Comments from the HOD:**

- > Even temperament, good and Patient teacher
- > Has applied for Patent
- > Executes <sup>assigned</sup> work sincerely
- > Publishes papers periodically.
- > Submitting PhD in 2022.

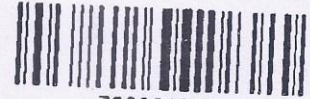
*W. Kelle*  
4/10/21  
Signature of the HOD

**Comments of the Principal after the discussion:**

Signature of the Principal

CEO





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**CLAIMS:**

**We Claim:**

1. Claim 1: The Geopolymer Coarse and Fine aggregates can be manufactured using Ground Granulated Blast Furnace Slag (GGBS) of (Size less than 150 micron), Silica Fume (Size less than 0.3  $\mu\text{m}$ ) and Alkaline solutions( Sodium Hydroxide and Sodium Silicate).
2. Claim 2: The Mix proportions of 75% of GGBS and 25% of silica fume is used for manufacture Geopolymer Coarse and Fine aggregates.
3. Claim 3: The Geopolymer Coarse and Fine aggregates are manufactured in Concrete mixer.
4. Claim 4: The Geopolymer Coarse and Fine aggregates are manufactured using sodium Hydroxide of 6 Molarity and Alkali/Binder ratio of 2.5.
5. Claim 5: The Geopolymer coarse aggregates are manufactured in a concrete mixer by maintaining rotation angle of 45 degree at 60rpm.
6. Claim 6: Geopolymer Fine aggregates are manufactured in a concrete mixer by maintaining rotation angle of 25 degree for 20 rpm, 30 rpm and 40 rpm.
7. Claim 7: The Physical properties of Geopolymer aggregates satisfy the Bureau of Indian standards (BIS).Hence it can be used as alternative Material for Natural Coarse and Fine aggregates in concrete and in Construction Industries.

*K. Ramoorthy* 6/11/2020  
Name and Signature of Applicant

NAVEENA M.P.

*Naveena M.P.*  
Name and Signature of Inventor

Dr. VISAYALAKSHMI AREL

*Visayalakshmi Arel*  
Name and Signature of Inventor

Dr. K. RAMA NARASIMHA  
Principal/Director  
K S School of Engineering and Management  
Bengaluru - 560 109

TU-NOV-2020/9/931/ZU1941044331/Claims



The process of manufacturing of Coarse and Fine aggregates as shown in Figure 1.

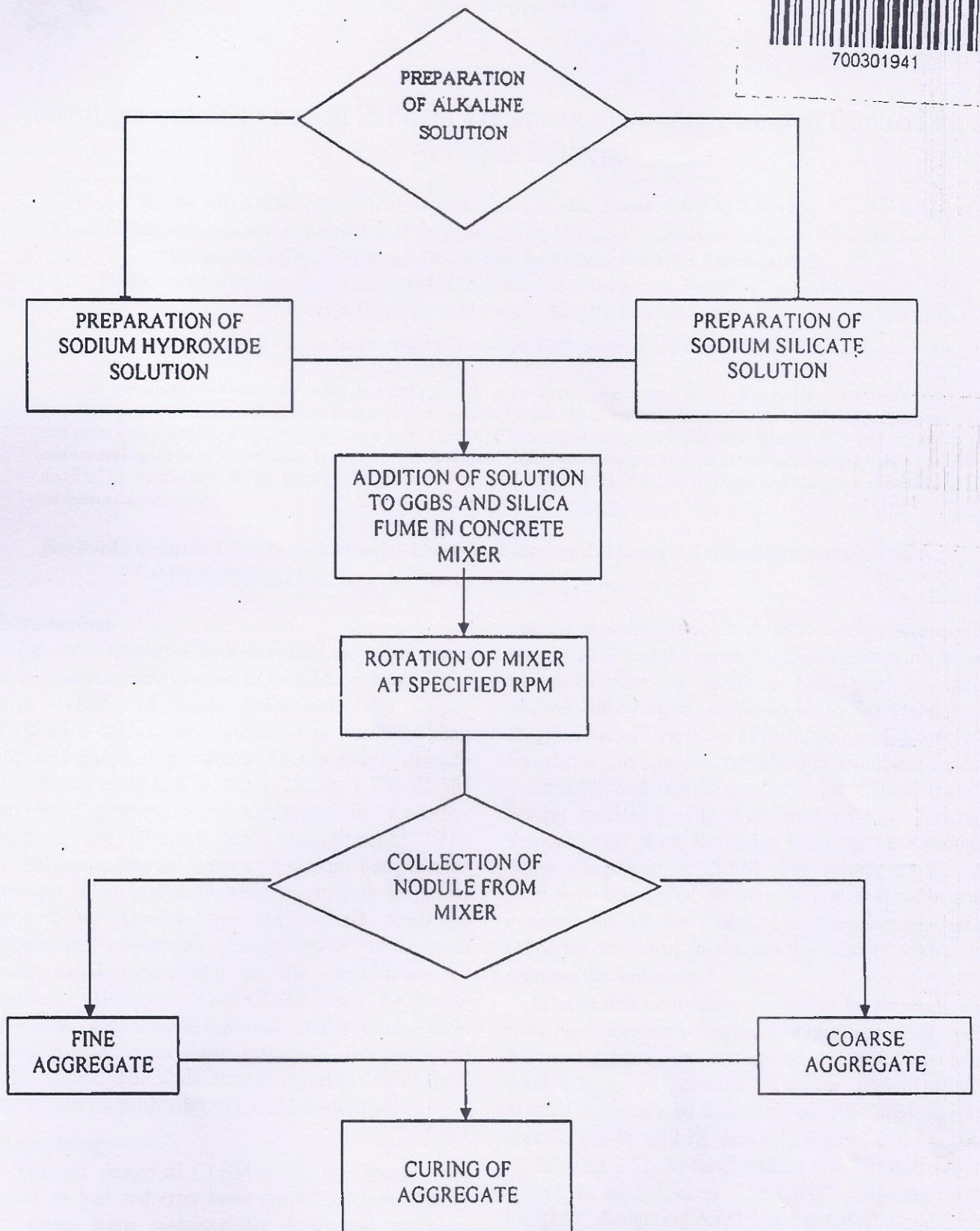


Figure 1 : Flow chart representation of Process of Manufacturing Aggregates

TU-NOV-2020/9/9371/ZU19410443371/Drawing





## Investigations of Common Effluent Treatment Plant Sludge based Controlled Low-Strength Material

B N Skanda Kumar <sup>1,4\*</sup>, A Shashishankar <sup>2,4</sup>, C Chandre Gowda <sup>1,4</sup> and M P Naveena <sup>3,4</sup>

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The management of industrial waste is a difficult task in the developing country like India. In the study, fresh and in-service properties of controlled low-strength material (CLSM) consisting of cement, class-F flyash, CETP sludge, M-sand and water were determined by laboratory scale tests. The CETP considered when combined with cement and flyash, exhibit self-hardening characteristics similar to cement. The developed CLSM constitute for five classes of mix design (A, B, C, D and E). The results show that the proposed CLSM satisfy for the pavement backfilling for sub-base and sub-grade of flexible pavement requirements.

**Keywords:** Controlled low-strength material, Unconfined compressive strength, Permeability, Compressibility, California bearing ratio

### Introduction

Industrial revolution has increased the requirement of the natural resources and in parallel contributed for large volume of waste generation. The CLSM (controlled low-strength material) is a self-leveling and self-compacting material (compressive strength less than or equal to 8.3 MPa at 28 days). The CLSM has been propagated in utilization of waste/by-products and efficient waste management.<sup>1-3</sup> The CLSM mixes should have a minimum compressive strength of around 0.44 MPa to provide sufficient support for construction and vehicle loads in pavements.<sup>4</sup> Synthetic fibers have also been incorporated successfully in the construction of concrete pavement.<sup>5</sup> The CLSM must be easily flowable, self-compacting and self-leveling; have wearing and freeze-thaw resistance for pavement applications.<sup>6</sup> The study aims at investigation of fresh and in-service properties of CLSM developed.

### Methodology

The mix design of CLSM mixes was brought out based on trial and error basis (ACI-229R) and totally 45 mixes were evaluated for fresh and hardened properties. In the study cement used was OPC 53 grade

(having specific surface area 3851 cm<sup>2</sup>/g and specific gravity 3.15) and the cement content through the mixes varied between 30 kg/m<sup>3</sup> to 120 kg/m<sup>3</sup>, at equal intervals of 20 kg/m<sup>3</sup> as shown in Tables 1 and 2. A study on use of flyash and silica fume blended concrete for marine environment has showed promising results comparable with normal concrete.<sup>7</sup> The Class-F fly ash having specific gravity 2.23 obtained from Raichur thermal power plant, Karnataka India; has been another major component in CLSM. The volume of fly ash used was 600 kg/m<sup>3</sup> of sample and the value was constant for all the mixes. The manufactured sand (M-sand) was used in the development of CLSM to improve the bulkiness.

M-sand was used as an alternative for conventional river sand. Successful application of micro silica (upto 8%) and graded coal bottom ash (upto 90%) shown good results on concrete.<sup>8</sup> For the present study, M-sand was confined zone-II as per (IS-2386); having specific gravity of 2.78, density 2.6 g/cm<sup>3</sup> and fineness modulus of 2.51. M-sand content was constant (1500 kg/m<sup>3</sup>) for all the mixes. The CETP sludge used was inorganic sludge collected from a CETP Bengaluru, Karnataka, India. The CETP sludge was replaced with 5, 10, 15, 20, 25, 50, 75 and 100 % dry weight of cement contents for each mix (Tables 1 and 2). The chemical composition of the CETP sludge constitutes

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# Experimental Studies on Controlled Low Strength Materials Using Black Cotton Soils and Comparison of Results with Taguchi Model



B. N. Skanda Kumar, M. P. Naveena, Anil Kumar, A. Shashishankar

**Abstract** In developing countries like India, due to fast urbanization and rapid development of infrastructure resulted in the use of soft and weak soils around for various Civil Engineering applications. The mechanical behavior of such nature of the soil has to be improved by employing stabilization and reinforcement techniques to make it reliable for construction activities. The black cotton soil is one of the major issues in India. BC soils when exposed to variation in moisture content they undergo high swelling and shrinkage making it more complicated for engineering point of view. The present study investigates the feasibility of controlled low strength material for stabilizing BC soils. The ACI-229R report describes controlled low-strength material (CLSM) as a cementitious material having compressive strength less than 8.3 Mpa (28 days). For the present study, a new greener CLSM comprising Class F fly ash, Cement, Common effluent treatment plant (CETP) Sludge, and Water was developed. The flowability and unconfined compressive strength test was carried out. It was observed from the experimental result that the maximum flowability was 19.8 cm for GF6 and maximum UCS value 0.259 MPa for GF7 mix. After finding the optimum mix, experimental work was carried out by mixing controlled low strength material with black cotton in different proportions. The CBR test was conducted to assess the strength gain of BC soil

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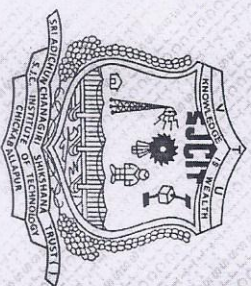
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Student Branch SJC Institute of Technology

THIS IS TO CERTIFY THAT

Mr. Naveena MP

has participated in the webinar on *Intellectual Property Rights in Research and Innovation* organised by Institutes Innovation Council, S J C Institute of Technology, Chickballapur in association of KSCST, IISc campus, Bangalore on 27th MAY 2021.

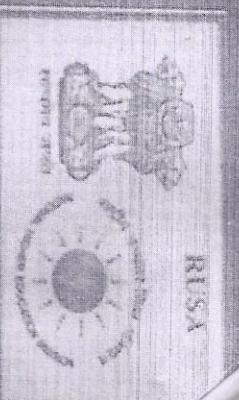
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Dr. Bhaskar S  
President IIC  
Professor Dept. ECE  
SJCIT

Dr. G T Raju  
Principal  
SJCIT

Mr. H Hemanth Kumar  
Executive Seceretry  
SJCIT





## CERTIFICATE OF PARTICIPATION

This is to certify that Mavena MP

KSSSEM

of \_\_\_\_\_ has

participated in Two Days Faculty Development Programme on "SUSTAINABLE AND STRENGTHENING OF LOW COST HOUSING FOR RURAL INDIA", organized by the Department of Civil Engineering, MSRIT, in association with KSHEC, held on 26<sup>th</sup> & 27<sup>th</sup> July 2021.

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Principal  
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