



Government College of Technology, Coimbatore – 641013
(An Autonomous Institution affiliated to Anna University, Chennai)
SELF- STUDY REPORT

CRITERION 3
Research, Innovations and Extension

Key Indicator 3.7: Collaboration

3.7.1 Number of functional MoUs /linkages with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research during the last five years

DECLARATION

This is to certify that the supporting documents uploaded in Institution website and the respective links are true to the best of my knowledge and belief. All documents and links are verified and authenticated.

Head of the Institution

(Seal and sign of the Principal)

Government College of Technology, Coimbatore-13

List of MoUs and Outcomes in the Year 2022

S.No	Name of the collaborating agency	Year of signing	Duration	Activities	Page no.
1	M/s. Karthikeyan Associates, Chennai	2022	5 Years	Industrial Project Guidance	3
				Internship	
				Industrial expert member for Bos	
2	M/s. Ramco Cements Limited, Chennai	2022	5 Years	Awareness programme on sustainability goals	19
3	Exterro	2022	3 Years	Student Workshop on "JAVA The industry perspective"	49
4	EL Advanced Automation, Coimbatore	2022	Lifelong	Student Internship on Transformer, VCB and Drives - 1 Student	68
5	TICEL Biopark Limited	2022	2 Years	student internship	73
6	Turbo Engineers (CBE)	2022	3 Years	Project Idea Expo	82
7	ICT	2022	1 Year	Seminar on Developing interpersonal skills	93
8	GODIGITAL PTY LTD	2022	3 Years		105
9	Fludics	2022	3 Years		107
10	Novi Tech R&D, Coimbatore	2022	3 Years		109
11	M/s. Land Coordinates Technology, Chennai.	2022	5 Years		110



Rs.20

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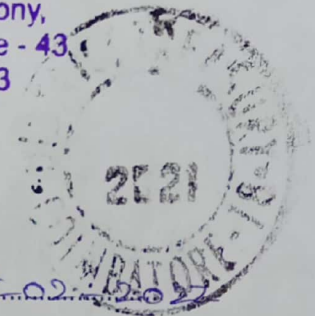
19.11.21

The Principal

Govt. College of
Technology

Use

I. Mary Evangelin Reda
I. MARY EVANGELIN REDA
STAMP VENDOR
126-A, Ramalinga Colony,
M.T.P. Road, Coimbatore - 43
L No : 7333/B1/97F 3



This Memorandum of Understanding (MoU) is executed on 18.11.21

Between

Karthikeyan Associates, which is an Engineering Consultancy with its Registered Office at No 56, 2nd Floor, 3rd East street, Amaravathi nagar, Arumbakkam, Chennai, Tamilnadu which is one of the Leading Consultancy firm in Chennai,

And

Government College of Technology, Coimbatore is a reputed institution which offers many Engineering courses in various disciplines (hereinafter referred to as GCT, Coimbatore)

PREAMBLE

WHEREAS, Karthikeyan Associates is engaged in research, design and development and consultancy in the field of Engineering and Technology, Material Science and Architecture and Planning.

WHEREAS, GCT Coimbatore, which is a reputed institution which offers many Engineering courses in various disciplines and is also contributing to the rapidly growing scientific and technological knowledge and professional excellence in technology by undertaking various research and consultancy activities.

WHEREAS, both Karthikeyan Associates and GCT Coimbatore, now,

Recognizing the importance of research and development in the areas of Building science, Engineering Sciences, Engineering Geology and Material Science.

Appreciating the need for creation of large reservoir of highly qualified manpower in all fields related to Building Science and Technology including Structural Engineering, Geotechnical Engineering, Material Science and Architecture & Planning and other areas of Engineering.

Desiring to enhance their efforts by joining their expertise and resources.

INTEND to form a Synergistic Framework for promoting development and growth of excellent quality manpower in the fields of Engineering, Technology and Science with a focus on Civil Engineering, Building Science, Engineering Geology and other branches of Engineering, Technology and Science. NOW, THEREFORE in consideration of the mutual promises made herein and of good and valuable consideration, the receipt and sufficiency of which both Karthikeyan Associates and GCT Coimbatore hereby acknowledge, Karthikeyan Associates and GCT Coimbatore hereby agree as under:

ARTICLE —I: SCOPE OF THE MoU

This MoU details the modalities and general conditions regarding collaboration between Karthikeyan Associates and GCT Coimbatore for enhancing, within the country, the availability of highly qualified manpower in the area of Civil Engineering, Building Science and Technology, Structural & Geotechnical Engineering and other areas of Engineering, Technology and Sciences without any prejudice to prevailing rules and regulations in Karthikeyan Associates and GCT Coimbatore and without any disregard to any mechanism evolved and approved by the competent authorities under Govt. of India /State Government of Tamilnadu in so far as such mechanism applies to Karthikeyan Associates and/or GCT Coimbatore. The areas of cooperation can be extended through mutual consent.

ARTICLE - II: SCOPE OF ACADEMIC INTERACTION

Karthikeyan Associates and GCT Coimbatore shall encourage interaction between Karthikeyan Associates and GCT Coimbatore faculty members and students through the following arrangements.

a. Guidance of student's projects/thesis in Karthikeyan Associates in the area of building science and technology of national interest on mutually agreeable terms as listed below:

i) A Consultant / R&D Engineer at Karthikeyan Associates may be appointed as a Research Co-Guide for a student Registered for Ph.D. degree at GCT.

ii) The students will carry out their PhD research work/ or project at Karthikeyan Associates under the guidance of Engineers of Karthikeyan Associates.

iii) There will be no restrictions on the contents of the thesis and on publications of results of the thesis, subject to the condition that Intellectual Property Rights can be secured for any part of the work which will be decided with mutual consent.

iv) Karthikeyan Associates will be free to independently carry out follow-up research on the thesis work conducted under this scheme.

v) If the outcome of a project related to product development, process, technology and design etc. which involves matter of secrecy and concern with security of the state and country the same will not be allowed for publication/printing in any form such as Electronically/verbal etc. If the outcome of a project results into an intellectual property, for which rights can be secured, it will be decided on case to case basis. Similarly, sharing of expenditure in securing such rights and income accrued through royalty etc by the parties under the law will be decided on case to case basis after mutual consultation.

vi) Joint guidance of student projects / theses in Structural Engineering, Seismic Micro zonation, Geotechnical Engineering, Building Science & Technology, Engineering Geosciences and other areas of mutual interest at GCT Coimbatore by Karthikeyan Associates Scientists and faculty of GCT Coimbatore as per rules and regulations of both institutes.

b) Organization of joint Conferences and Seminars

c) Practical training for students of M.E. Structural Engineering and M.E. Geotechnical Engineering of GCT Coimbatore at Karthikeyan Associates and vice-versa.

d) Participation of Karthikeyan Associates Experts in GCT Coimbatore programmes and events as well as participation of Faculty and Students of GCT Coimbatore to participate in research programmes and events of Karthikeyan Associates, based on mutual agreement and approvals of both organizations as appropriate.

e) Initiation of collaborative research and submission of joint project proposals by Karthikeyan Associates and GCT Coimbatore to external funding.

f) Karthikeyan Associates shall be allowed permission to conduct campus interviews and recruit selected students of GCT Coimbatore for employment.

ARTICLE — III: SHARING OF FACILITIES

a) Karthikeyan Associates and GCT Coimbatore shall make provisions to share their respective R&D facilities in order to promote academic and research interaction in the areas of cooperation subject to approvals and availability.

b) Karthikeyan Associates and GCT Coimbatore shall permit the exchange of software and other materials and components developed in-house in the areas of cooperation, if permissible, within the rules governing the two Organisations.

c) Karthikeyan Associates and GCT Coimbatore shall provide access to the library and extend inter-library loan facilities to scientists of Karthikeyan Associates, members of faculty and students of GCT Coimbatore as per the prevailing rules and norms in the respective institutes.

d) Karthikeyan Associates and GCT Coimbatore shall permit access to library collection through E-library in which the users enjoy the euphoria of being in distance and still access library collection with the use of internet network.

e) GCT students/Faculty shall be responsible for the Visa, travel and accommodation costs for availing the Karthikeyan Associates oversee facilities

ARTICLE — IV: EFFECTIVE DATE AND DURATION OF MoU

a) This MoU shall be effective from the date of its approval by competent authorities at both ends.

b) The duration of the MoU shall be for a period of 5 years from the effective date and may be extended further on mutual agreement.

c) During its tenancy, the MoU may be extended or terminated by a prior notice of not less than six months by either party. However, termination of the MoU will not in any

manner affect the interests of the students who have been admitted to pursue a programme under the MoU, or progress of any ongoing mutual activity that has been initiated formally with approval of both sides.

- d) Any clause or article of the MoU may be modified or amended by mutual agreement of Karthikeyan Associates and GCT Coimbatore.

ARTICLE — V: IPR

Rights regarding publications, patents, royalty, ownership of software / design / product developed etc. under the scope of this MoU shall be decided by the two parties by mutual consent.

ARTICLE — VI: ARBITRATION

Any dispute arising out of this MoU will be resolved amicably by mutual consultation. If such resolution is not possible then the unresolved dispute will be referred jointly to Director, Karthikeyan Associates and The Principal, GCT Coimbatore. The outcome of the joint decisions of the Director/Principal shall be binding upon both the parties.

ARTICLE — VII: CONFIDENTIALITY

During the tenure of the MoU information to be shared must be indicated as "confidential" or "non-confidential". Both Karthikeyan Associates and GCT Coimbatore will maintain confidentiality and prevent disclosure of all the information designated as "confidential" except by mutual agreement.

IN WITNESS WHEREOF PARTIES HERE TO HAVE ENTERED INTO THIS AGREEMENT EFFECTIVE AS ON THE DATE AND YEAR FIRST WRITTEN ABOVE.

P. Thamarai

18/02/2022

Dr.P. Thamarai
Principal
Government College of Technology
Coimbatore,
TamilNadu, India

Date:

Witness 1:

R. K. Srinivasan
18/2/22

Witness 2:

S. P. Srinivasan
18/2/2022

Er. A. Karthikeyan

Er. A. Karthikeyan,
Karthikeyan Associates,
Arumbakkam,
Chennai,
TamilNadu, India

Date:

Witness 1:

S. R. Srinivasan

Witness 2:

C. P. Srinivasan

DEPARTMENT OF CIVIL ENGINEERING (STRUCTURES)
GOVERNMENT COLLEGE OF TECHNOLOGY
(An Autonomous Institution affiliated to Anna University)
COIMBATORE - 641 013

18SEEE01 - DESIGN PROJECT

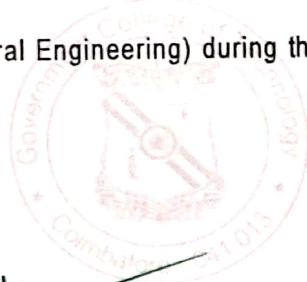
JUNE 2023

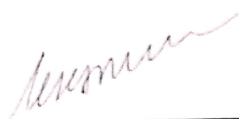
This is to certify that this project work entitled
**PLANNING, ANALYSIS AND DESIGN OF S+3
RESIDENTIAL BUILDING**
is the bonafide record of project work done by

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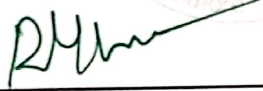
71772271101

of M.E. (Structural Engineering) during the year 2022 - 2023





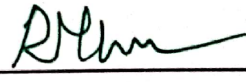
External Guide
Er. A. KARTHIKEYAN, M.E.,



Project Guide
Dr. R. THENMOZHI, M.E. Ph.D.,



Programme Coordinator
Dr. M. RAMA, M.E. Ph.D.,

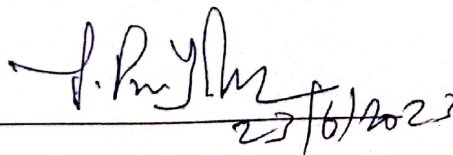


Head of the Department
Dr. R. THENMOZHI, M.E. Ph.D.,

Submitted for the Project Viva-Voce examination held on _____



Internal Examiner



External Examiner



ACKNOWLEDGEMENT

I take this opportunity to express my sincere gratitude to all those who have enabled me to complete this project successfully. It gives me immense pleasure to thank our respected Principal **Dr.K. Manonmani, Ph.D.**, Government College of Technology, Coimbatore for granting me permission to take this project.

I express my sincere thanks to **Dr. R. Thenmozhi, M.E., Ph.D.**, Professor & Head, Department of Civil Engineering (Structural Engineering) and my internal guide for her valuable suggestions for the completion of the project work.

I sincerely remit my due respect to **Dr. M. Rama, M.E., Ph.D.**, Associate Professor and programme Coordinator, Department of in Civil Engineering (Structural Engineering) for her valuable suggestions for the completion of the project work.

I sincerely remit my due respect to my external project guide **Er.A.Karthikeyan, M.E., Structural Designer, Founder- M/s. Karthikeyan Associates**, for his encouragement and guidance throughout the project.

I extend my gratitude to my parents who have been a constant support to me with encouragement.

I thank all the faculty members and non-teaching staff of Department of CivilEngineering and my friends for their help in completing this project work.

DEPARTMENT OF CIVIL ENGINEERING (STRUCTURES)
GOVERNMENT COLLEGE OF TECHNOLOGY
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18SEEE01 - DESIGN PROJECT

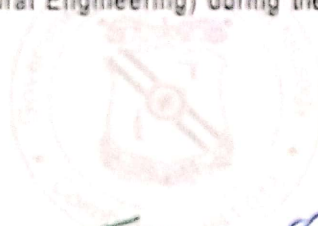
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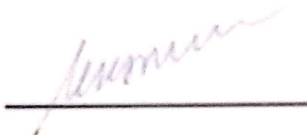
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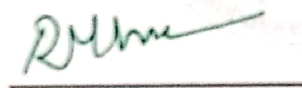
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of M.E. (Structural Engineering) during the year 2022 - 2023

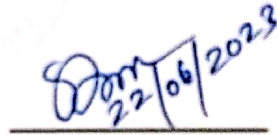




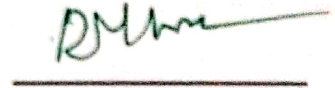
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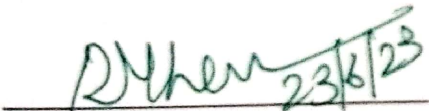

22/06/2023

Programme Coordinator
Dr. M. RAMA, M.E. Ph.D.,

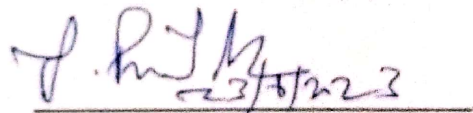


Head of the Department
Dr. R. THENMOZHI, M.E. Ph.D.,

Submitted for the Project Viva-Voce examination held on 23-06-2023


23/6/23

Internal Examiner


23/6/2023

External Examiner

ACKNOWLEDGEMENT

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I thank all the faculty members and non-teaching staff of Department of Civil Engineering and my friends for their help in completing this project work.



KARTHIKEYAN ASSOCIATES

Structural & Geotech., Consultants

No. 56, 2nd Floor, 3rd East Cross Street, Amaravathy Nagar, Arumbakkam, Chennai-600 106.
E-Mail : karthikeyanassociates@gmail.com karthik_structure@rediffmail.com

Date: 31.03.2023

INTERNSHIP CERTIFICATE

This is to certify that **Mr.C.Naveen** S/o Chiranjeevilu studying I year **M.E Structural Engineering, Reg No: 71772271112** from **Government College Of Technology, Coimbatore**. He had undergone **Internship** in our Company from 20.03.2023 to 31.03.2023. He worked on the field of Design of R.C.C Structures. He also visited some of our sites. During the period of Training he bears good character and conduct with our company.

We wish him all the best for his future endeavors.

For KARTHIKEYAN ASSOCIATES

Proprietor

A. KARTHIKEYAN, M.E., MIE., MIGS, FIV
Chartered Engineer, Reg. No: M-151242-5
Professional Engineer, Reg. No: PE/00443/10/R/21
Approved Valuer Reg. No: F27169
Structural & Geotech Consultant
Registered Structural Engineer Grade-II
CMDA: SE/GR-II/19/07/127
GCC: RSE200822019
No: 56, Second Floor, 3rd East Cross Street,
Amaravathy Nagar, Arumbakkam,
Chennai-600 106. Phone: 8122031941

KARTHIKEYAN ASSOCIATES

Structural & Geotech., Consultants

No. 56, 2nd Floor, 3rd East Cross Street, Amaravathy Nagar, Arumbakkam, Chennai-600 106.

E-Mail : karthikeyanassociates@gmail.com karthik_structure@rediffmail.com

Date: 31.03.2023

INTERNSHIP CERTIFICATE

This is to certify that **Mr.M.Afsal Uwais S/o K.Mubarak Ali** studying **I year M.E Structural Engineering**, Reg No: 71772271101 from **Government College Of Technology, Coimbatore**. He had undergone **Internship** in our Company from 20.03.2023 to 31.03.2023. He worked on the field of Design of R.C.C Structures. He also visited some of our sites. During the period of Training he bears good character and conduct with our company.

We wish him all the best for his future endeavors.

For KARTHIKEYAN ASSOCIATES

Proprietor

A. KARTHIKEYAN, M.E., MIE., MIGS, FIV
Chartered Engineer, Reg. No: M-151242-5
Professional Engineer, Reg. No: PE/00443/16/R/21
Approved Valuer Reg. No: F27189
Structural & Geotech Consultant
Registered Structural Engineer Grade-II
CMDA: SE/GR-II/19/07/127
GCC: RSE200822019
No: 56, Second Floor, 3rd East Cross Street,
Amaravathi Nagar, Arumbakkam,
Chennai-600 106. Phone: 8122031941

GOVERNMENT COLLEGE OF TECHNOLOGY – COIMBATORE -13
(An Autonomous Institution Affiliated to Anna University, Chennai)

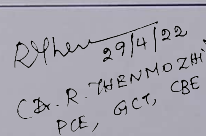
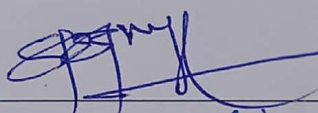
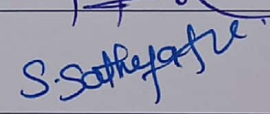
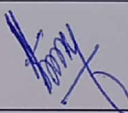
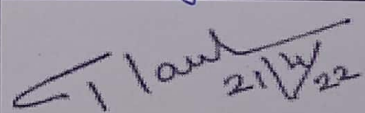
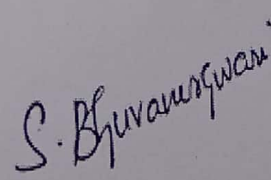
Department of Civil Engineering
M.E. Geotechnical Engineering

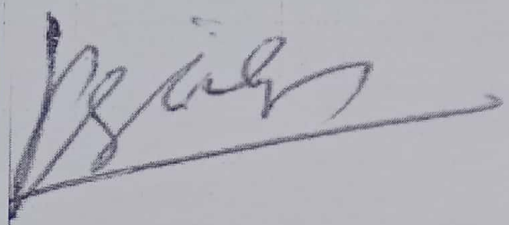
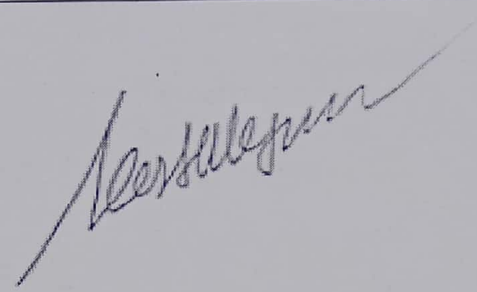
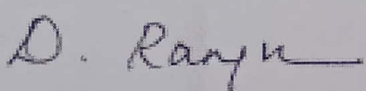
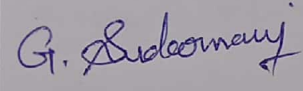
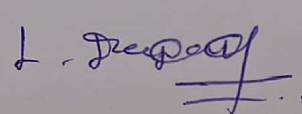
Dated: 21.04.2022

Minutes of Meeting of Board of Studies Meeting

The Board of Studies meeting for M.E. Geotechnical Engineering Programme was held on 12.04.2022 at 03.30 p.m. through online mode using Google meet link <https://meet.google.com/hte-bbra-yxz>

The following members attended the meeting.

Sl. No	Description	Name	Signature
1.	Chairman / Head of the Department	Dr. R. THENMOZHI, PCE	 29/4/22 (Dr. R. THENMOZHI) PCE, GCT, CBE
2.	Name of the Regular Faculty of respective Specialization	Dr. S.P.Jeyapriya, PCE(CAS)	
		Dr.S.Sathyapriya, Asst.Prof.	
		Dr.M.Kumar, Asst.Prof. (Geology)	
3.	Two subject experts from outside the Parent University	Dr. G.Janardhanan Associate Professor and Head NITTTR, Chennai-600 113. Mobile:9445520968 Email:jana@nitttre.ac.in	 21/4/22
		Dr.S. Bhuvaneshwari Associate Professor, Dept. of Civil Engg. SRM Institute of Science and Technology, Kattankulathur- 603 203. Mobile:9840369765 Email: eshwari_28@yahoo.co.in	

4.	University Nominee	Dr. P.Vinayagam, Professor Dept. of Civil Engg., Coimbatore Institute of Technology, Coimbatore-641 014. Mobile No:9790030050 Mail-id: vinayagam@cit.edu.in	
5.	One Representative from Industry	Er.A.Karthikeyan Structural and Geotechnical Consultant Karthikeyan Associates, Arumbakkam, Chennai. Mobile No:9884085840 Mail-id: karthikeyanassociates@gmail.com	
6.	One Post Graduate meritorious Alumnus	Ms.D.Ranjini Chief Geotechnical Engineer Geodesign India Pvt. Ltd., K.K.Pudur, Coimbatore. Mobile No:9044344022 Mail-id: ranjuranjini@gmail.com	
7.	One representative from Parent	Th. C.Elangovan Kiruthiga Garden South Avinashi Palayam Koduvai, Tirruppur-638660	ABSENT
8.	Student Members (I Year and II Year students)	G.Sudarmani (Reg.No.2071316) I Year M.E.Geotechnical Engineering L. Deepak (Reg.No.71772171301) II Year M.E.Geotechnical Engineering	 

The following Agenda were taken in order and discussed in the meeting

- Approval of Department Vision and Mission
- Approval of Programme Outcomes
- Approval of Curriculum and syllabi of 2022 regulations

The Chairman and Head of the Department, Dr.R.Thenmozhi welcomed all the members of Board of Studies and presented the agenda of the meeting. The agenda were taken in order for discussion and the members have given the following suggestions.

1. The Chairman Dr.R.Thenmozhi has presented the Vision and Mission of the department. Dr.S.Bhuvaneshwari has suggested to include collaborative research in the proposed vision of the department.
2. While presenting the proposed Programme Outcomes of Geotechnical Engineering Programme, the subject expert Dr.G.Janardhanan has pointed to modify existing PO3 and can recast according to the specialization of the programme.
3. The chairman BoS continued with the presentation of Curriculum of all four semesters with the brief presentation of syllabi of Core courses, Professional Elective subjects, Open electives and Audit courses of Geotechnical Engineering programme.

The Academic expert member Dr.G.Janardhanan has insisted to change the name of the Foundation course 22GEFCZ1 Research Methodology and Publication ethics as Research Methodology and Professional ethics. Er.A.Karthikeyan pointed to include detailing of all types of foundations in the syllabus of Core course 22GEPC02 Advanced Foundation Engineering.

Dr. G.Janardhanan has also made a point that the practical subject 22GEPC04 Advanced Soil Mechanics laboratory syllabus can be enhanced by adding additional experiments on Geotechnical Instrumentation. The member also added that, in the practical course 22GEPC07 Subsoil exploration laboratory, the interpretation of pile integrity test results can be included as one of the experiments so that the students acquire knowledge on pile testing report as most of the infrastructure is placed on pile foundations. Also, Instead of offering open elective 22GEOE02 Earth and its Environment, the subject Soils in construction can be offered by the department.

The expert member also stated that the order of the subjects in the first semester 22GEPC02 Advanced Foundation Engineering and 22GEPC03 Strength and deformation behavior of soils has to be changed by bringing Strength and deformation as the second core subject followed by Advanced Foundation Engineering.

The University nominee Dr. P.Vinayagam and industrial expert Er.A Karthikeyan have pointed that, while carrying out internship the students may be given exposure on projects executed on-site so as to get practical exposure on both geotechnical and structural aspects of a building.

The members have advised that, the students may publish papers in the conference prior to completion of their Master's programme as it would help in improving technical report writing skills.

The Programme Co-ordinator Dr.S.P.Jeyapriya has proposed to add topics such as offshore exploration in Unit-I and IRC method of stability analysis of well foundation in Unit IV in the core subject 22GEPC02 Advanced Foundation Engineering. In the Professional elective 18GEPE22 Ground Improvement Techniques, topics like Rock bolting, design principles and case studies can be included in UNIT-III.

In the subject 22GEPC03-Strength and Deformation Characteristics of soils, Dr.S.Sathyapriya suggested to include Cam Clay model and to remove Drucker and Prager yield criteria, hyperbolic stress-strain model and rheological models. As guided by the Academic expert member Dr.G.Janardhanan two new elective subjects namely 22GEPE08 Forensic Geotechnical Engineering and 22GEPE25 Tunnel Engineering has been included and the syllabus has been framed.

Dr.M.Kumar has suggested to add topics such as Engineering properties of rocks and soil formation in Unit-I, Landslides and earthquake seismology in Unit-III and structural geology investigation for foundation in Unit-V in the professional elective course 22GEPE14Geology in Geotechnical Engineering.

Dr.V.Satheeskumar has proposed to add topics such as Mathematical and statistical packages and seismic hazard analysis in the core course 22GEPC08 Finite Element Analysis Laboratory. In the professional elective Finite Element Analysis, topics like higher order elements in UNIT IV and Various soil applications can be included in UNIT-V.

Finally, the Chairman thanked all the members of Board of Studies for their valuable suggestions and critical comments given during the meeting for updating the curriculum and syllabi presented for 2022 regulations for the M.E.Geotechnical Engineering Programme. The meeting came to an end at 4.30 pm.

R/Hev 29/4/22
Ch. R. THENMOZHI
PCE, GCT, CBE

Chairman

Board of Studies

S P JEYAPRIYA is presenting

LIST OF PROFESSIONAL ELECTIVES

Sl. No	Course Code	Course Title	Category	Continuous Assessment Marks	End Sem Marks	Total Marks	Contact Periods	L	T	P	C
1	22GEPE01	Remote Sensing and its Applications in Geotechnical Engineering	PE	50	50	100	3	3	0	0	3
2	22GEPE02	Soil Properties and Behaviour	PE	50	50	100	3	3	0	0	3
3	22GEPE03	Sustainable Geotechnics*	PE	50	50	100	3	3	0	0	3
4	22GEPE04	Reinforced Soil Structures	PE	50	50	100	3	3	0	0	3
5	22GEPE05	Finite Element Analysis	PE	50	50	100	3	3	0	0	3
6	22GEPE06	Foundation in Expansive Soils	PE	50	50	100	3	3	0	0	3
7	22GEPE07	Soil Structure Interaction (Common with M.E. Structural Engg.)	PE	50	50	100	3	3	0	0	3
8	22GEPE08	Forensic Geotechnical Engineering*	PE	50	50	100	3	3	0	0	3
9	22GEPE09	Rock Mechanics in Engineering Practice	PE	50	50	100	3	3	0	0	3
10	22GEPE10	Geotechnical Earthquake Engineering	PE	50	50	100	3	3	0	0	3

Rajagopal Thenmo...

Janardhanan G

S P JEYAPRIYA

B
Bhuvaneshwar SU

K
Karthikoyan Asso...

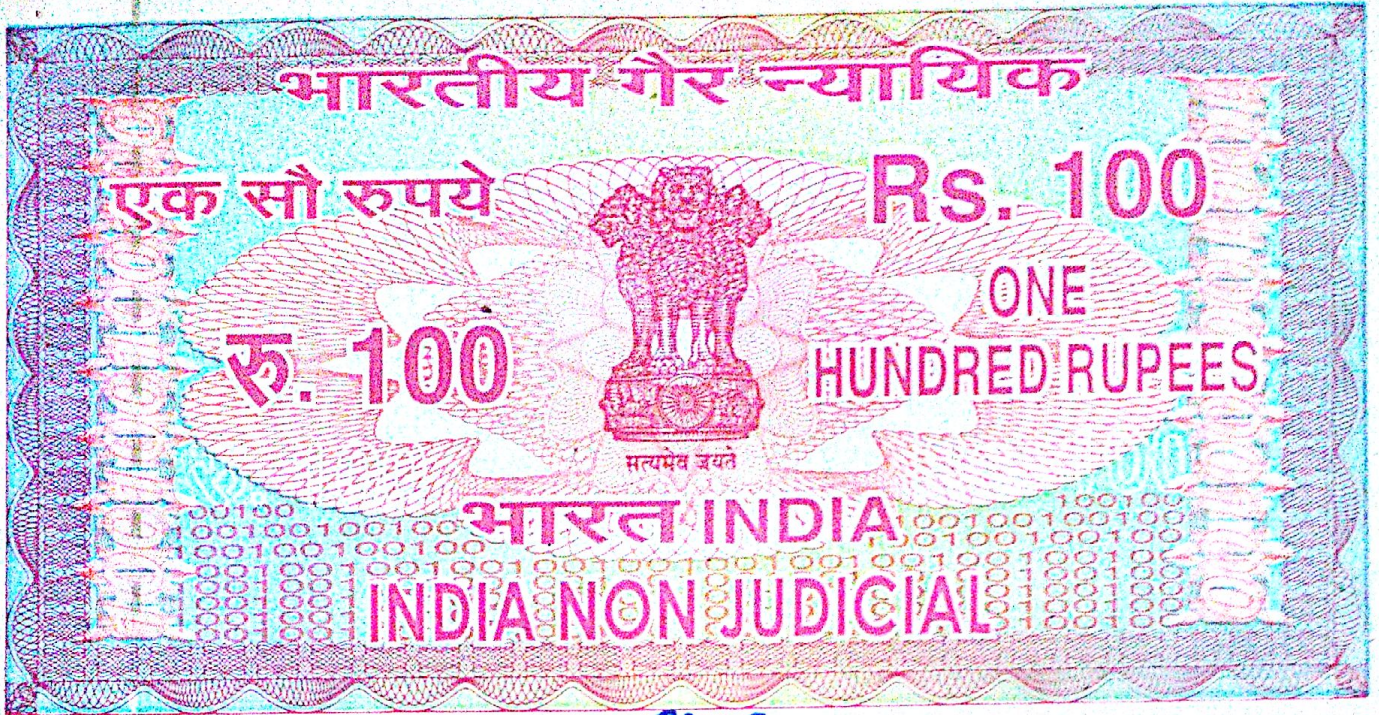
Dr Vinayagam P

S
sathyapriya s

6 others

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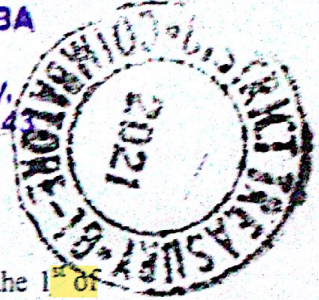
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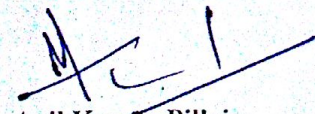
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Government College of
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The Ramco Cements Limited

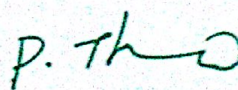
RS. 100

I. MARY EVANGELIN REBA
STAMP VENDOR
126-A, Ramalinga Colony,
M.T.P. Road, Coimbatore - 4
L No : 7333/B1/97F3



This Memorandum of Understanding (herein after referred to as MoU) is made on the 1st of July, 2022 between The Ramco Cements Limited incorporated as a company under the Companies Act having its Corporate office at 98A, Dr Radhakrishnan Road, Mylapore, Chennai – 600004 hereafter referred to as “The Company” on one part and Department of Civil Engineering of Government College of Technology, Coimbatore, mentioned hereafter as “GCT.Coimbatore”, on the other part as partners for promoting the industry-academic interaction activities and to help achieve academic excellence of Government College of Technology, Coimbatore.


Mr. Anil Kumar Pillai
GM Technical Services,
The Ramco Cements Limited


Dr. P. Thamarai Ph.D., Principal,
Government College of Technology,
Coimbatore

WHEREAS, both The Ramco Cements Limited and Government College of Technology, Coimbatore (herein after called "parties") desire to carry out programmes for promoting industry-academic interaction, herein referred to as "Programme", jointly with the diligence and efficiency as desired with in this MoU in conformity with appropriate administrative, financial and educational practices and implement all such plans and activities and reforms as required for the Programme.

WHEREAS The Ramco Cements Limited and Government College of Technology, Coimbatore agree to enter into industry-academic interaction programmes and both the parties agree to enter into a MoU with the terms as follows.

OBJECTIVES OF INDUSTRY-ACADEMIC INTERACTION PROGRAMME

The major objectives for which the parties associate with each other are:

- a. To effectively share the facilities and expertise for improving the capabilities for advanced education and research.
- b. Collaborate to share and exchange information between both parties for mutual benefit and knowledge enhancement.
- c. To enable the use of laboratories and test facilities in Government College of Technology, Coimbatore by The Company and vice versa.
- d. To provide opportunity to the all the students and faculty of GCT Coimbatore to visit Cement Plants and Research Center of The company at a date and time mutually convenient to both Parties.
- e. To provide advice in formulating curriculum and syllabus for UG Civil Engineering and PG Structural Engineering by the experts from The Ramco Cements Limited.
- f. To conduct presentations/quiz/paper presentation for the benefit of GCT students by the Technical Services team of The Ramco Cements Limited based on mutually acceptable terms and conditions.
- g. To conduct joint/collaborative research and consultancy.

THE PROGRAMME

This MoU is to formalize joint programme activities that will help Government College of Technology, Coimbatore to enhance its research and educational, and The Ramco Cements Limited in achieving its business objectives. The following activities are indicative of the types contemplated through this joint program:

STUDENT INTERSHIPS

Students will be encouraged to take advantage of the opportunities that exist at The Ramco Cements Limited to understand high technology research, development, manufacturing and marketing. Participation in programs that allow students to gain valuable experience and training as interns will be encouraged. However, The Ramco Cements Limited will have no obligation to hire the students interns from Government College of Technology, Coimbatore. The Ramco Cements Limited may also provide mentoring to students in concert with Government College of Technology, Coimbatore. These students may be mentored by experienced Engineers from The Ramco Cements Limited, who may also act as their project guides ad advisors.

COURSES, SEMINARS AND WORKSHOPS

The Ramco Cements Limited and Government College of Technology, Coimbatore will inform each other and make available, on an "as-available" basis, slot to personnel in short term courses, lectures, workshops and seminars conducted covering various areas of common interest. Government College of Technology, Coimbatore may also develop progammes and conduct courses for The Ramco Cements Limited personnel. The Ramco Cements Limited may also support Government College of Technology, Coimbatore in the development and coordination of conferences and workshops in areas of mutual need and concern.

IMPLEMENTATION AND MONITORING

For implementation and monitoring of the programme, The Ramco Cements Limited and Government College of Technology, Coimbatore agree that:

- a. The interaction between The Ramco Cements Limited and Government College of Technology, Coimbatore will be implemented by creating a Coordination cell both at The Ramco Cements Limited and Government College of Technology, Coimbatore.
- b. Each such cell will be headed by an employee nominated by the respective head of institution who shall be designated as Network Coordinator and whose main responsibility will be to execute and coordinate all activities envisaged under this MoU.
- c. The Ramco Cements Limited and Government College of Technology, Coimbatore will constitute a Network Coordination Committee (NCC) for regular monitoring of the activities and achieving the set targets. The committee will meet at least once in six months and review the progress.
- d. If the activities could result in the form of publication / patent then the IPR will be with both the parties under the scope of this MoU and rights regarding publications/patents/royalty/ownership of product developed etc., shall be decided by the two parties by mutual consent.
- e. The Ramco Cements Limited and Government College of Technology, Coimbatore will sign separate agreement for specific projects.

NON-DISCLOSURE OF CONFIDENTIAL INFORMATION

The Ramco Cements Limited and Government College of Technology, Coimbatore agree that they will abide by the non-disclosure of any confidential information exchange during the Programme.

FINANCE

Regarding the financial arrangements during the Project implementation, The Ramco Cements Limited and Government College of Technology, Coimbatore further agree to:

- a. Both the Parties will engage services to the existing employees for the Programmes and no additional staff will be provided.
- b. Both the partners will utilize existing infrastructure for industry-academic interaction arrangement.

- c. All expenses in connections with implementation and monitoring such as TA/DA, boarding/lodging and conveyance of members will be borne by the respective institution.

INDEMNITY

Both parties hereby indemnify and shall keep indemnified and protected the other party and their respective officers and employees from and against any claims or action arising out of or in any way relating to the provision and implementation of the programme as per this MoU.

DURATION

This MoU will be active for a period of five years from the date of this MoU. It will be extended for further period by mutual consent.

It is also agreed that no other company in the Cement Industry is allowed to have collaboration with Government College of Technology, Coimbatore during the MoU period.

TERMINATION

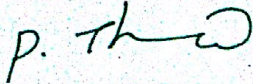
Either party has the right to terminate this MoU by giving ninety days written notice to the other party.

ARBITRATION

In the event of any dispute arising out of this MoU, it will be amicably resolved by the mutual consultation. If such resolution is not possible then the unresolved dispute will be referred jointly to ~~Mr. K. Vigneswar, Dy. Manager~~ Ramco Cements and Principal, Government College of Technology, Coimbatore. The outcome of the joint decisions of the ~~Dy. Manager~~ ^{Mr. K. Vigneswar} Principal shall be binding upon all the parties.

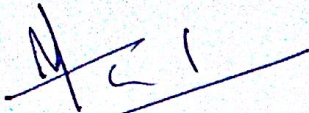
The two parties of this MoU agree to act in good faith and in a spirit of mutual understanding and accommodation to facilitate the achievement of goals set under the Programme.

IN WITNESS WHEREOF the parties here to have caused this MoU to be signed in their respective names as of the day and year.



Dr. P. Thamarai Ph.D., Principal, Government College of Technology, Coimbatore

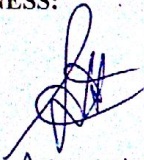
FOR AND ON BEHALF OF Government College of Technology, Coimbatore



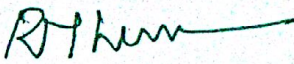
Mr. Anil Kumar Pillai, GM Technical Services, The Ramco Cements Limited

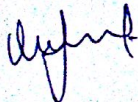
FOR AND ON BEHALF of The Ramco Cements Limited

WITNESS:

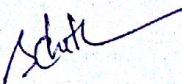
1. 

A.D. SHANMUGA RAJA HARI
DCM - RAMCO CEMENTS.

1. 
Dr. R. THENMOZH
PCE, GCT

2. 

K. VIGNESWAR
DY. Manager - Tech. Services.

2. 

Dr. S. CHITHRA
APCE, GCT

Permitted.

[Signature]

04/11/22

Department of Civil Engineering,
Government College of Technology,
Coimbatore – 641 013.
Date:04.11.2022

Submitted to the Principal:

Sub : Department of Civil Engineering- Conduct of “**Awareness Programme on Sustainable Development Goals (SDG)**” at Civil Engineering seminar hall -
Permission Requested-Regarding.

Sustainability is a not about being the best in the world but about being the best for the world. The Sustainable Development Goals (SDGs) is a widely acknowledged developmental agenda, and as engineer would be aware, knowledgeable and be willing to contribute to its attainment.

It is planned to organize events to strengthen the awareness about the **Sustainable Development Goals (SDG)** for the students of GCT. It is kindly requested that permission may please be given to conduct the following activities towards creating the awareness about Sustainable Development Goals and its importance to the faculty and students of GCT on 23.11.2022.

S.NO	TITLE OF THE EVENT	RESOURCE PERSON / PARTICIPANT	DATE AND TIME
1	Industry Expert Key Note Speech	Resource Person: Mr.A.D. Shanmugarajahari, Senior Deputy General Manager, The Ramco Cements Ltd	23.11.2022 10.15 a.m.
2	Industry Expert Talk	Resource Person: Mr.Shakivel Palani General Manager, D-CAD Center for Applied Dynamics, New Delhi, India	23.11.2022 10.50 a.m.
3	Interdisciplinary Poster / Model Competition on “Idea for Green and Sustainable GCT Campus ”	Participants: All GCT students	23.11.2022 11.30 a.m onwards

[Signature]
04/11/22
Coordinators

[Signature]
4/11/22
HoD - Civil Engg / Convenor

Event on
“Sustainable Development Goals (SDG)”

Date: 23.11.2022

02/12/22

Final Report

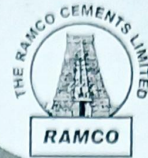


Conducted by

**Department of Civil Engineering,
Government College of Technology,
Coimbatore - 641013.
in association with
The RAMCO Cements Private Limited and
Indian Concrete Institute (ICI).**



Indian Concrete Institute



**GOVERNMENT COLLEGE OF TECHNOLOGY
COIMBATORE - 13**

AWARENESS PROGRAMME ON SUSTAINABLE DEVELOPMENT GOALS (SDG)

*Students and Faculty members of Department of
Civil Engineering in association with
The Ramco Cements & ICI organises*

**INTERDISCIPLINARY POSTER/MODEL
COMPETITION FOR GCT STUDENTS ON**

IDEAS FOR GREEN AND SUSTAINABLE GCT CAMPUS

Working towards Sustainability

The primary rule of sustainability is to align with natural forces. Without waiting for someone else to save our planet, we GCTians are trying to achieve sustainability in our campus with the support of our budding engineers

Date : 23.11.2022

Time : 10:00 A.M

Venue

Civil Seminar Hall

*Industry expert keynote speaker - Mr. A. D. Shanmugarajahari,
Senior Deputy General Manager, The RAMCO Cements Limited*

*Industrial expert talk - Mr. Shakivel Palani,
General Manager (Project Engineering),
D-CAD Center for Applied Dynamics, New Delhi.*

**Prizes will be given to 1st and 2nd prize winners
Certificates will be given to all participants**

- ◆ Poster presentation - Max 2 participants
- ◆ Model making - Max 4 participants
- ◆ Poster size: A2 | Abstract for Poster/Model Competition should be limited to 500 words
- ◆ Teammates can be from any year and any department

TOPICS

The topics listed below are much welcomed

- Food and waste management
- CO₂ emission
- Energy conservation
- Transportation
- Water conservation



Registration link

<https://forms.gle/XcskB3oP9AqfmmtB9>



SCAN TO REGISTER



**Registration closes on 20th November
for Abstract Submission**

Patron	Dr.P.Thamarai, Principal
Convenor	Dr.R.Thenmozhi, Professor and HOD - Civil Engineering
Coordinators	Dr.S.Chithra, APCE Prof.S.Makesh Kumar, APCE Prof.P.Nirmal, APCE

For queries contact: Dr.S.Chithra, APCE - 9360793507



Indian Concrete Institute



**GOVERNMENT COLLEGE OF TECHNOLOGY
COIMBATORE - 13**

**AWARENESS PROGRAMME
ON SUSTANIABLE
DEVELOPMENT GOALS**

EVENT AGENDA

DATE: 23.11.2022
TIME: 10:00 A.M

- 10:00 - தமிழ் தாய் வாழ்த்து
- 10:05 - WELCOME ADDRESS
-By Dr.R.THENMOZHI M.E(Struct),Ph.D,HOD,CIVIL
- 10:10 - INTRODUCTION OF INDUSTRIAL EXPERT KEY NOTE SPEAKER
-By Dr.S.CHITHRA ME(Struct),Ph.D,AP/CIVIL
- 10:15 - INDUSTRIAL EXPERT KEY NOTE SPEECH
-By Mr.A.D.SHANMUGARAJAHARI,
Senior Deputy Manager, The RAMCO Cements Limited
- 10:45 - INTRODUCTION OF INDUSTRIAL EXPERT
-By Dr.S.CHITHRA ME(Struct),Ph.D,AP/CIVIL
- 10:50 - INDUSTRIAL EXPERT TALK
-By SHAKIVEL PALANI,
General Manager (Project Engineering),
D-CAD Center for Applied Dynamics, New Delhi
- 11:20 - TEA BREAK
- 11:30 - POSTER /MODEL PRESENTATION
- 12:00 - PRIZE DISTRIBUTION
- 12:15 - VOTE OF THANKS
-By Prof.P.NIRMAL, AP/CIVIL
- 12:20 - NATIONAL ANTHEM

GOVERNMENT COLLEGE OF TECHNOLOGY, COIMBATORE – 641013

Department of Civil Engineering in association with The RAMCO cements Pvt Ltd and Indian Concrete Institute (ICI) organises

Awareness Programme on “SUSTAINABLE DEVELOPMENT GOALS (SDG)”
on 23.11.2022

02/12/22

REPORT ON THE EVENT

The awareness programme started with tamizhthai vazhthu. Welcome address was delivered by Dr. R. Thenmozhi, Professor of Civil Engineering. The introduction about the industrial experts Mr.A.D.Shanmugarajahari, The RAMCO cements Pvt Ltd., and Mr.Shakivel Palani, D-CAD centre, Delhi was given by Dr. S. Chithra, APCE. The industrial experts delivered key note speech on Sustainable Development Goals to the faculty and students of GCT. About 10 faculty members and 77 students were benefited from the speech. An interdisciplinary poster/model competition was conducted for the students with the industry experts as judges. The winners were announced and prize were distributed. The detailed report is given below.

Resource Person Detail:

Mr.A.D.Shanmugarajahari has completed his Bachelor's degree in the year 1993 from American College, Madurai and Masters in Business Administration in the year 1995 from Madurai Kamaraj University. He started his career in the leading newspaper “The Hindu” and worked hard towards the successful release of the magazine “The Business Line”. He joined The Ramco Cements Limited as Sales Officer in the year 1996 and worked at various levels in the state of Tamilnadu and Kerala for the past 25 years. He has delivered a keynote speech on “Sustainable Development Goals (SDG)” to the students from Government College of Technology, Coimbatore on 23.11.2022.

Mr.Shakivel Palani has completed his Bachelor's degree in the year 1998 from P.S.G. College of Technology, Coimbatore and Masters in Ocean Engineering (Structures), in the year 2000 from I.I.T Madras. He is entitled as Professional Engineer by Engineering Council of India. He started his career as P.G. Trainee Engineer in AFCONS Infrastructure Limited, Mumbai, India. He has profession experience of 21 year in Structural Design. Currently he is working as General Manager in D-CAD Center for Applied Dynamics, New Delhi, India.

Topics discussed in the Event:

In this Event, the resource person **Mr.A.D.Shanmugarajahari** has shared his working experience and delivered power point presentation explaining various innovative sustainable practices adopted during various stages in the manufacturing of cement in “The Ramco Cements Limited.” **Mr.Shakivel Palani** has shared his working experience and explained in detail Sustainable practice to be adopted in construction of building.

F. n. 02/12/22 *S. Chithra*
Coordinators 2/12/22 *S. Chithra*

R. Thenmozhi 2/12/22
Dr.R. Thenmozhi
HoD - Civil Engg / Convenor

Technical Poster Presentation Competition

The Department of Civil Engineering, GCT, Coimbatore in association with The Ramco Cements Private Limited and ICI organized a Technical Poster / Model Presentation Competition on the 23th November, 2022 as a part of the awareness programme on the **Sustainable Development Goals (SDG)** event. The competition aimed to help students get exposed to the need of sustainability along with SDG's framed by UN towards achieving the target by 2030. The students were motivated to showcase their technical model/poster making skills and their ability to present their respective technical knowledge as an initiative towards achieving sustainability within GCT campus. The details are mentioned below:

Topic: Interdisciplinary Poster / Model Competition for GCT students on **"Ideas for Green and sustainable GCT Campus"**

Date: 23th November, 2022

Time: 11:30 am

Venue: Civil Engineering Seminar Hall

The judges for the competition were Mr.A.D.Shanmugarajahari, Mr.Tamilmaran from The Ramco Cements Private Limited and Mr.Shakivel Palani from D-CAD centre, Delhi. A total of Sixteen teams participated in the technical poster competition, each team consisting of two team members. Each team was given 5 minutes to present their ideas displayed in the poster followed by critical review by the judges by the judges and marks were awarded based on the ideas presented with relevance to the theme, creativity, presentation and effort. The winners of the competition were decided based on the average marks awarded by three judges.

The details of winners are given below:

Winner (Shared by two teams) -

Team No 13 :T.Dyanesh and P.Harishankar

Team No 11 : K.P . Logavani and D.Balashakrishana

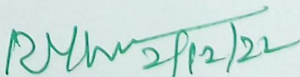
Runner (Shared by two teams) -

Team No 14 : M.Afsal Uwais and R.Athira

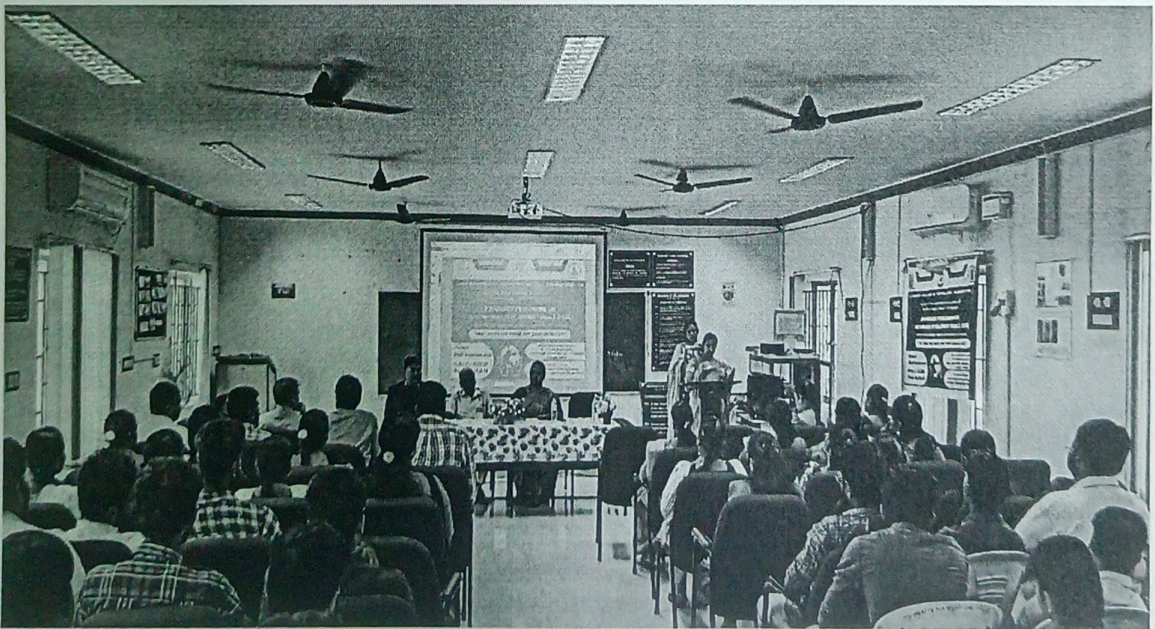
Team No 12 : S.Ashwini and R.SelviVignia

The winners and runners were given prize and certificate sponsored by The RAMCO Cements Pvt Ltd. All the participants were given participation certificate.

P.N. 02/12/22
Coordinators
S. M. K.
2/12/22
S. K.
2/12/22


Dr.R.Thenmozhi
HoD - Civil Engg / Convenor

Photos taken during the Awareness Programme on Sustainable Development Goals (SDG)





Dr. R. Thenmozhi
2/12/22
S. M. Subash K
2/12/22
K. P. S.
2/12/22

Coordinators

Dr. R. Thenmozhi
2/12/22

Dr. R. Thenmozhi
HoD - Civil Engg / Convenor

GOVERNMENT COLLEGE OF TECHNOLOGY, COIMBATORE - 641 013

Feedback Analysis on

"Awareness Programme on Sustainable Development Goals

Organised by Department of Civil Engineering on 23.11.2022

Sl. No.		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	The training met my expectations.	37	34	3	-	1
2.	I will be able to apply the knowledge learned.	36	32	5	-	2
3.	The training objectives for each topic were identified and followed.	38	41	5	-	2
4.	The content was organized and easy to follow.	35	40	5	-	2
5.	The experts were knowledgeable.	35	28	3	-	2
6.	The quality of instruction was good.	35	25	3	1	1
7.	The experts met the training objectives	25	15	3	1	1
8.	Class participation and interaction were encouraged.	28	21	3	1	1
9.	Adequate time was provided for questions and discussion.	35	22	3	1	1
		Excellent	Very Good	Good	Fair	Poor
	The overall rating for the training is	36	28	2	1	1

P. n. 02/12/22 S. m. k. 2/12/22
 Coordinators

Dr. R. Thenmozhi
 HoD - Civil Engg / Convenor

Attendance Sheet

Sl.No.	Register No.	Student Name	Department	Signature
38	71772171309	Pravin. S	M.E Geotech	[Signature]
39	71772171313	E. Subashchandrabase.	M.E. Geotech	[Signature]
40	71772171302	S. Hanisharan	"	[Signature]
41	71772171111	SANTAS	M.E-Struct	[Signature]
41	71772171105	Gokul. A	M.E Struc	[Signature]
42	71772171110	RAHUL. R	M.E Struct	[Signature]
43	71772271101	Mahendrakumar. R	M.E. Struc & Sys	[Signature]
44	71772171112	Sathesh Pandian. M	M.E Structural	[Signature]
45	71772171113	N. Shorankumar	M.E (Structural)	[Signature]
46	1911205	Swathy. K	B.E (CIVIL)	[Signature]
47	1911210	Vishnupriya k	B.E (CIVIL)	[Signature]
48	71772271115	P. Vijayavendhan	M.E (Structural)	[Signature]
49	2011188	Sathy Anarayan Samy	B.E (CIVIL)	[Signature]
50	2011116	Shanmugaprakash A	B.E (CIVIL)	[Signature]
51	71772171101	T. Anitha	M.E (Structural)	[Signature]
52	2011184	R. Rashini	B.E (CIVIL)	[Signature]
53	2011187	S.K. Sannathli	B.E (CIVIL)	[Signature]
54	2011191	R. Sivaram	B.E (CIVIL)	[Signature]
55	2011194	M. Ekan Kumar	B.E (CIVIL)	[Signature]

P. P. [Signature] 23/11/22
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Attendance Sheet

Sl.No.	Register No.	Student Name	Department	Signature
1.	71772271308	R. Maheswari	ME-Geotechnical	R. Maheswari
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3.	71772271306	R. Kaviya	ME-Geotech	R. Kaviya
4.	71772271309	R. Mythili	ME-Geo tech	R. Mythili
5.	71772271312	M. Ramya	ME-Geo tech	M. Ramya
6.	71772271302	A. Anto Nevis Presentia	ME-Geotech	Anto
7.	71772271310	S. Rajakumari Malavizhi	ME-GeoTech	S. Rajakumari
8.	71772271103	Deekshitha M K	ME-STRUCTURE	Deekshitha
9.	71772271109	Jaisree . K	ME-Structure	J. Jaisree
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11.	71772271311	P. Ramachandran	ME-Geo Tech	P. Ramachandran
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13.	71772271301	Abdul Kader Sajid K.S	ME-Geotech	A. Sajid
14.	71772271314	Sarath Rajeev	ME Geotech	Sarath Rajeev
15.	71772271316	G. vignesh	ME Geotech	G. Vignesh
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17.	71772271313	R.A. Ranjith Kumar	M.E-Geotech	R.A. Ranjith Kumar
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12/11/22 23/11/22
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GOVERNMENT COLLEGE OF TECHNOLOGY, COIMBATORE -641 013

Awareness Programme on Sustainable Development Goals

Department of Civil Engineering

Venue: Civil Seminar Hall

Date:23.11.2022

Attendance Sheet

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1.	S. Sathyapriya	AP/Civil	S. Sathyapriya
2.	Dr. R. Chithra	AP/CE	(Chithra) 23/11/2022
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4.	Dr. K. Rekha	AP/CE	Dr. K. Rekha 23/11/22
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6.	Dr. G. Dharmodhara Kannan	AP/CE	G. Dharmodhara Kannan 23.11.22
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Incorporating of waste from sugar industry and cement industry in concrete

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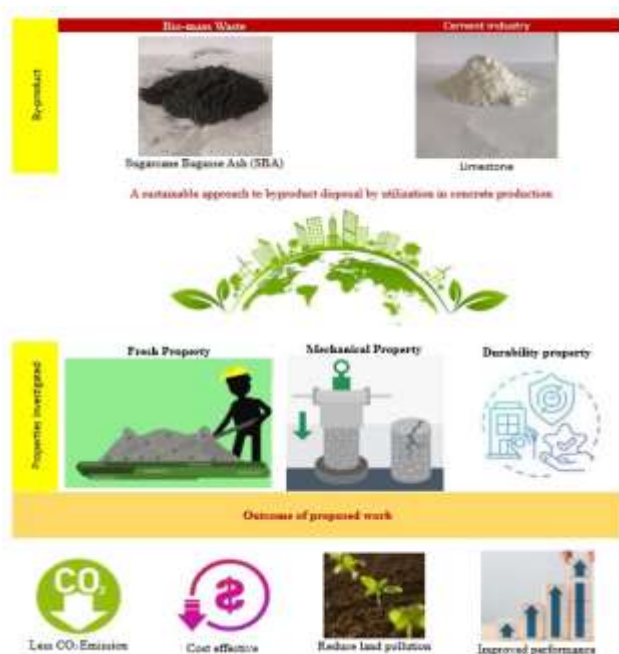
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Graphical abstract



Abstract

As the production of biomass waste from agroindustry grows across the world, a large amount of agro-based ashes ends up in polluting land. The utilization of Sugarcane Bagasse ash (SBA) as Supplementary cementitious materials (SCMs) contributes to a fixing of issues related to CO₂ emissions from cement industry and land pollution in agro-based industry. Individual performance on the utilization of SBA and limestone in concrete reported by many researcher, research on their combined usage in the concrete is limited. As a result, the current work involves the performance evaluation of ternary blended concrete incorporating SBA and limestone. The blended concrete's workability properties, compressive strength, water absorption, Rapid Chloride Penetration Testing (RCPT), Sorptivity, water permeability and electrical resistivity are examined in this paper. It improves the compressive strength and durability

properties of ternary blended concrete. It was observed that addition of 10-15 % limestone along with 10 % SBA improves the concrete performance. However, exceeding 15 percent had a detrimental impact on concrete properties. The additional alumina contributed by SBA will interact with limestone that enhance the concrete properties. Utilization of SBA and limestone powder reduces cement consumption in cementitious composites and reduce environmental impact due to un-engineered disposal of SBA. Thus, result in improved sustainable production of concrete.

1. Introduction

The industry sector is the major contributor to global CO₂ emissions. Demand reduction, substitution, and carbon management are critical components of CO₂ reduction in industry (Karthik *et al.*, 2023; Kathirvel and Murali 2023). The production of construction materials such as steel, cement, and concrete are an extremely energy- and emissions-intensive operation. The manufacturing of cement accounted for 7% of total world CO₂ emissions. Concrete is one of the most widely utilized materials on the planet, with an estimated 14 billion tonnes produced globally in 2020. The IEA CSI Cement Technology Roadmap projects that worldwide cement production is expected to rise by 12-23% by 2050, based on population and development. Furthermore, from 1928 to 2018, the total worldwide CO₂ emissions from cement production were 38.3 ± 2.4 Gt. Awareness about alternative materials to be used as a whole or partial cement replacement material is necessary in order to minimize cement use and CO₂ emission (Cheah *et al.*, 2022; Gopika *et al.* 2022; Kathirvel *et al.*, 2020).

The ternary blended concrete is a concrete comprising three distinct binders: Ordinary Portland Cement (OPC) and two supplemental cementitious materials (SCMs). Over the years, numerous SCMs derived from waste materials like silica fume, fly ash, Sugarcane bagasse ash, rice husk ash and ground granulated blast furnace slag have been employed to create composite cements (Amran *et al.* 2022). These cements serve the purpose of not only reducing the environmental impact but also

improving the durability of concrete while being environmentally friendly. It is important to take into account that when two SCMs are employed, the by-products of these two components may partially compensate each other's disadvantages. As a consequence, ternary concrete may achieve enhanced strength and durability properties.

Biomass ash refers to the solid waste produced when plant biomass is burned for the purpose of generating heat and electricity. As the energy sector transitions from non-renewable fossil fuels to more sustainable biomass fuels, significant amounts of biomass residual ash are generated and disposed off from cogeneration units. Sugarcane Bagasse Ash (SBA), Rice Husk Ash (RHA), palm oil fuel ash (POFA) and so on are commonly generated during the combustion process in agro-industries

Sugarcane is an essential crop in many developing nations. Sugarcane bagasse is a vital byproduct of the sugar industry that is obtained during the manufacturing process of sugarcane juice. Bagasse cogeneration is widely employed in sugar industry to satisfy the energy demands of the industry. In 2019, India produced 405.4 million tonnes of sugarcane, with the capacity to produce 105.4 million tonnes of bagasse and 2.5 million tonnes of SBA (Das *et al.*, 2022). Due to the presence of higher percentages of amorphous silica and alumina, it came to light that SBA may be employed as pozzolanic material. The use of SBA could consequently solve the existing problem of bagasse ash disposal in sugar industry.

Globally, the incorporation of SBA in cement and concrete has attracted many researchers over few decades. Most of the research articles published in this regard explore the impact of SBA on the fresh and hardened characteristics of various concretes (Batool *et al.*, 2020; Katare *et al.*, 2017; Moretti *et al.*, 2018). The characteristics of the SBA is one of the primary factors defining its behaviour in cement and concrete. SBA obtained from industry cannot be directly used in concrete because it requires minimal preparation to serve as pozzolanic material. A detailed investigation of the pozzolanic mechanism of SBA employing different ways of processing such as burning, grinding, sieving and combinations of these processes were studied by many researcher (Bahurudeen *et al.* 2015; Cordeiro *et al.* 2008). To reduce negative impact on environment, it is necessary to decide on a processing method that enhances pozzolanic activity along with adopting the least amount of processing energy.

Jagadesh *et al.* studied mechanical properties of concrete by substituting cement with different proportion (5-30%) of SBA and observed that the incorporation of 10% bagasse ash in concrete improves its compressive strength by more than 10% (Jagadesh *et al.*, 2018). Rajasekar *et al.* reported the utilization of processed SBA on ultra-high strength concrete and observed that adding 15-20 wt% processed SBA to the cement reduced chloride penetration and increased compressive strength of the concrete compared to control concrete mix (Rajasekar *et al.*, 2018). Zareei *et al.* concluded that substitution of 5-

10% SBA enhances the durability and impact resistance of concrete (Zareei *et al.*, 2018). Based on result of many researchers, the utilization of SBA as a cement alternative in cement composite is advised at lower quantities, i.e., 5-15% by mass of cement (Arenas-Piedrahita *et al.*, 2016; Arif *et al.*, 2016). Even though addition of SBA to concrete enhances many properties of concrete, it also has adverse impact on concrete. Klathae *et al.* found that incorporating of SBA as replacement in cement leads to significant increase superplasticizer dosage to maintain the desired slump due to porous nature of SBA (Klathae *et al.*, 2021) Similar result was observed by Bahurudeen *et al.* that addition of SBA in concrete resulted in decrease in workability because of its high specific surface area (Bahurudeen *et al.*, 2014).

Because of its low cost and widespread availability, limestone powder is one of the commonly utilized alternatives as a partial replacement for cement in concrete mixtures. The substitution of limestone in concrete influences the properties of concrete by filler effect, chemical effect and nucleation effect. Ramezaniapour (Ramezaniapour *et al.*, 2009) observed 12.5 % increase in slump value with 10% limestone included in concrete and observed reduced compressive strength with addition of limestone on the 90 and 180 day. . Although limestone is typically utilized as a filler material, with the suggested level ranging from 6% to 20% (Meddah *et al.* , 2014). Many researchers have found similar results of compressive strength loss at latter age (Githachuri and Alexander 2013; Meddah *et al.*, 2014; Tsivilis *et al.*, 2003). The decrease in compressive strength is demonstrated as a result of dilution effect.

2. Research significance

The rise in SBA availability as biomass residue in sugar industry makes it critical to seek out alternatives to reduce the environmental impact. Furthermore, SBA could make up for many of the disadvantages in concrete made of OPC and limestone blended cement. Filler effect of limestone can play a significant part in improving the workability and concrete's early age strength whereas incorporation of SBA enhances latter age compressive strength of concrete. The objective of this study is to utilize SBA and limestone in concrete production as alternatives to cement. The effect of ternary cement on fresh, hardened and durability properties of concrete The blended concrete's workability properties, compressive strength, water absorption, RCPT, Sorptivity, water permeability and electrical resistivity are examined was studied in order to further investigate the potential of SBA and limestone in concrete.

3. Experimental study

3.1. Materials

3.1.1. Cement

OPC 53 grade cement produced by The Ramco cements limited was employed in this investigation complying with the provision of Indian Standard IS 12269:2013. The

physical properties and chemical compositions of the cement are reported in Table 1.

3.1.2. *Sugarcane bagasse ash*

SBA were obtained from Subramaniyan Siva Sugar Cooperative Society and was oven dried for 24 hours and then grounded using a ball mill until they pass through 300 μm sieve as shown in Figure 1a. The physical properties and chemical composition of the SBA is listed in Table 1. The XRD pattern and SEM image of the SBA is shown in Figures 1b and 1c respectively.



Figure 1a. Sugarcane Bagasse Ash (SBA)

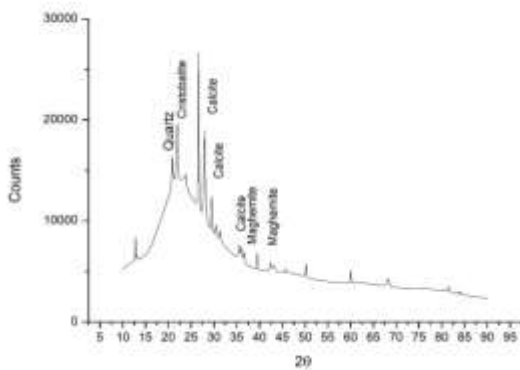


Figure 1b. XRD pattern of SBA

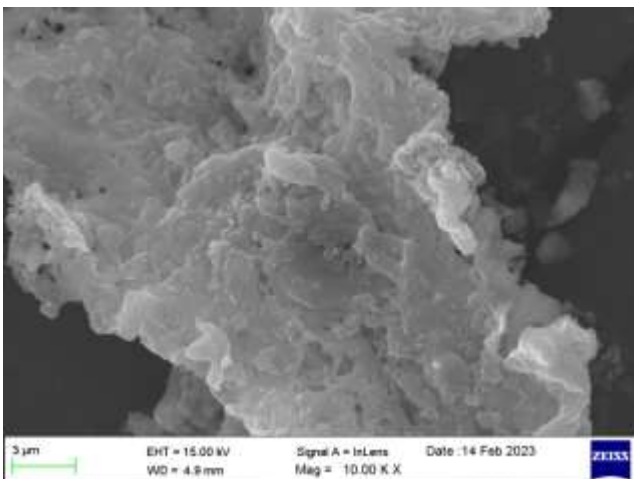


Figure 1c. SEM Image of SBA

3.1.3. *Limestone*

Commercially available limestone powder was employed in this study as shown in Figure 2a. The physical properties and chemical composition of the SBA is also listed in Table 1. The XRD pattern and SEM image of the limestone is shown in Figures 2b and 2c respectively.



Figure 2a. Limestone

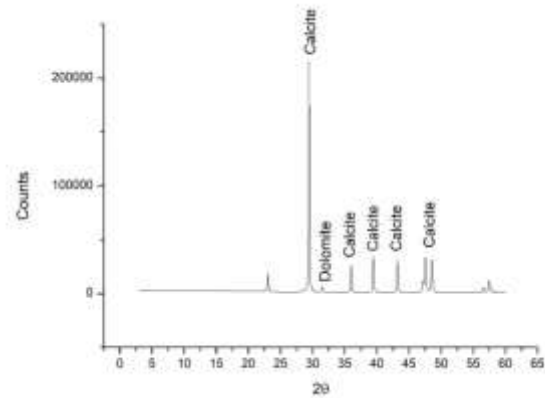


Figure 2b. XRD pattern of limestone

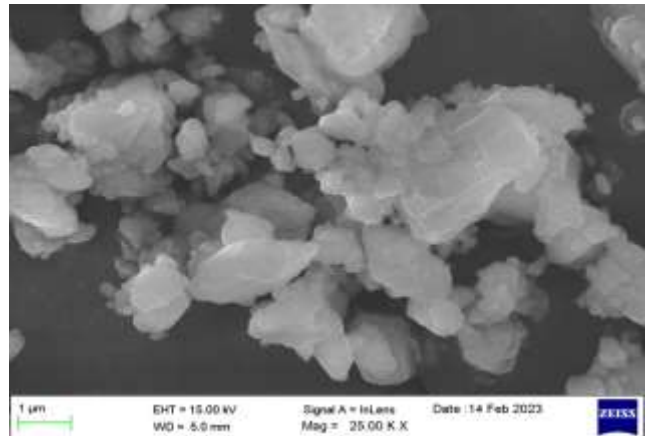


Figure 2c. SEM Image of limestone

3.1.4. *Aggregate*

The fine aggregate employed in this study was crushed granite rock of size less than 4.75mm, while the coarse aggregate used was a combination of 10mm and 20mm crushed granite. The physical properties of aggregate are listed in Table 2. Before mixing, aggregates were saturated surface dried.

Table 1 Physical and chemical composition of raw materials

Description	OPC	SBA	Limestone
Physical Characteristics			
Blaine surface [m ² /kg]	310	530	345
Specific gravity	3.11	1.96	2.60
Chemical Composition			
SiO ₂	20.4%	72.5%	2.55%
Al ₂ O ₃	3.1%	6.5%	0.65%
CaO	64.0%	3.8%	53.5%
Fe ₂ O ₃	2.3%	3.8%	0.4%
MgO	1.2%	-	0.35%
SO ₃	0.23%	1.5%	<0.01%
P ₂ O ₅	-	3.1%	-
K ₂ O	0.13%	4.8%	-
LOI	1.2	8.26	44.5

Table 2. Physical properties of aggregates

S.No.	Physical Properties	Fine Aggregate	Coarse aggregate
1.	Specific gravity	2.65	2.75
2.	Bulk density (kg/m ³)	1580	1620
3.	Grading	Zone - II	Well graded
4.	Fineness modulus	2.54	6.11

Table 3. Proportions of concrete mixtures

Mix ID	Water Binder ratio	Cement (kg/m ³)	SBA (kg/m ³)	LS (kg/m ³)	FA (kg/m ³)	CA (kg/m ³)		SP (%)
						20mm	10mm	
C	0.45	370	-	-	690	730	480	0.9
B-10	0.45	333	37	-	690	730	480	2.1
T-20	0.45	296	37	37	690	730	480	2.0
T-25	0.45	277.5	37	55.5	690	730	480	1.8
T-30	0.45	259	37	74	690	730	480	1.5

3.1.5. Superplasticizer

Sulphonated naphthalene polymers-based superplasticizer was used to achieve the slump value of 80-100mm.

3.2. Mix proportion and sample preparation

Five types of concrete mixes with fixed 0.45 water-cement ratio were examined and are shown in Table 3. All concrete mixes were prepared using pan mixer with a capacity of 50l. Aggregates and binder were dry mixed initially and then gradually water was added along with superplasticizer until the mixture was visually uniform. The total mixing time was restricted to 3 minutes. For each mix, twenty-one 150 mm cubes were cast for compressive strength, water absorption and water permeability tests. Four 150 mm x 300 mm cylinders were for determining the sorptivity and rapid chloride penetration test. All specimens were kept in the casting yard for 24 hours after casting. The specimens were then demolded and placed in a water bath to cure until the day of testing.

3.3. Test procedures

3.3.1. Workability

The slump flow test was conducted on fresh concrete as per IS 1199-1959 (1199 1959) to evaluate the workability of concrete and no segregation occurred in any mixes.

3.3.2. Compressive strength

According to IS 516-2021, the compressive strength of concrete cubes was determined using 3000kN CTM at 7, 28 and 90 days of curing. Three concrete specimens were tested for each mix to determine the average compressive strength.

3.3.3. Water absorption

The percentage of water absorption in hardened concrete is determined from the amount of pore volume filled by water in fully saturated condition. Water absorption of concrete specimens were tested in concordance with ASTM C642(American Society for Testing and Materials 1997) after 28 and 90 days of curing and calculated using the formula

$$\text{Water absorption} = \frac{B-A}{A} \times 100\% \quad (1)$$

Where A is mass of oven-dry sample and B is mass of saturated sample after immersion.

3.3.4. Rapid chloride penetration resistance

After 28 and 90 days, 150mm x 300mm cylinder is taken out of curing and 100mm diameter and 50mm thick slice concrete specimen are cut from it and examined for RCPT in accordance with ASTM C 1202(ASTM C1202 2012). The specimen was vacuumed for 3 hours and soaked in water for 18 hours in the vacuum saturation equipment. The

specimens were then covered with epoxy sealant all over the cylindrical surface except for the sliced area as shown in Figure 3. A potential difference of 60 V dc is kept constant between two ends of specimen, one is immersed in 3% NaCl solution and other in 0.3 M NaOH solution. For a total of 6 hours, current was monitored every 30 minutes. The total charge (coulombs) transmitted through the specimen was calculated using following formula.

$$Q = (I_0 + 2I_{30} + 2I_{60} + \dots + 2I_{330} + I_{360}) \quad (2)$$

where Q is the total charge transmitted; I_0 is the current measured instantly after voltage is applied; I_t is the current measured at time 't' after voltage is applied.



Figure 3. Sample examined for RCPT

3.3.5. Sorptivity test

The Sorptivity was measured on a 100 mm diameter and 50 mm thick slice covered with epoxy sealant, specimen cut from 150mm x 300 mm cylinder at 28 and 90 days. Specimens were positioned on wedges and the tray was filled with $\text{Ca}(\text{OH})_2$ solution to 2 mm above the specimens' bottom surface as seen in Figure 4. Specimens were withdrawn for mass measurement at regular intervals, and the exposed face was softly cleaned with a cloth to create a saturated surface dry condition.



Figure 4. Test setup for sorptivity

3.3.6. Water permeability test

Three 150mm Cube were examined for water permeability test. In the water permeability apparatus, specimen is seated between neoprene gasket of cover plate. To prevent water leakage during testing, silica sealant was coated at the contact between the rubber gasket and the specimen. A water pressure of $0.5\text{N}/\text{mm}^2$ was kept constant on the surface of specimen for 72 hours. The specimens were quickly removed from the permeability cell when the pressure was released and were split. The depth of water penetrated in the specimen is measured as the water penetration of concrete.

3.3.7. Electrical resistivity

The electrical resistivity test was also performed on saturated cylinder sample of height 200mm and 100mm diameter at 28 and 90 days of curing using a Proceq Resipod with four-point wenner probe with 38mm spacing.

4. Results and Discussion

4.1. Mineralogical investigation of SBA and limestone

Mineralogical investigation of SBA was examined by XRD technique. The XRD graph of SBA showed quartz, calcite, maghemite and cristobalite peaks with a major spike between 15° and 30° , which signifies the detection of amorphous silica in SBA. Furthermore, the current observations are consistent with past studies (Athira and Bahurudeen 2022). SBA, with a high amorphous silica concentration, proves to be an essential contribution to concrete. Figures 1b and 2b show SEM images of SBA and limestone. The SBA seemed to have irregularly shaped particles with a porous structure which has negative impact on the workability of concrete. The XRD pattern of limestone shows major calcite peaks along with weak dolomite peak. Limestone has angular and crystalline particles with smooth texture. Similar outcomes have been noticed by other researchers (Sua-lam and Makul 2013; Thongsanitgarn *et al.*, 2014).

4.2. Workability

Percentage of superplasticizer used for attaining target slump is showed in Table 3. The target slump value of 95mm was reached with 0.9% of superplasticizer in control concrete mix but with substitution of 10% SBA in B-10 mix fail to achieve it. Additional superplasticizer dosage of 1.3 time than control mix was required to achieve the targeted slump. Due to SBA's irregular morphology, excessively porous structure, and absorbent nature, mix containing SBA requires more superplasticizer to reach the targeted slump compared to control mix (Bheel *et al.*, 2021). Addition of limestone to SBA incorporated concrete reduce plasticizer dosage. Increase in limestone content in concrete reduces the superplasticizer dosage to attain targeted slump because of the smooth round shape of limestone, which resulted in less friction force between particles thus improving the workability. About 30% reduction in superplasticizer dosage was observed for T-30 mix compared to B-10 mix.

4.3. Compressive strength

Figure 5 illustrates the compressive strength of all mixes. Compressive strength of all mixes increases with curing time, as anticipated. The compressive strength of control mix were 31.2, 39.5 and 45.6 MPa at 7, 28 and 90 days of curing respectively. At all testing ages, maximum compressive strength was observed for B-10 mix. At 28- and 90-days B-10 had a 5% and 10.7% increase in compressive strength compared to the control mix. This finding could be clearly demonstrated that increase in strength occur because of pozzolanic action of SBA. Furthermore, the increase in strength in presence of SBA also indicated that pozzolanic hydration of SBA occur gradually over time. Rerkpiboon (Rerkpiboon *et al.*, 2015) observed similar result when 20 % SBA replacement in concrete improved the compressive strength by 12-13% than control mix at latter days.

The highest compressive strength for ternary concrete at 28 days and 90 days was observed for T-25 mix. At 90 days, the highest compressive strength in concrete specimens was 46.5 MPa for the T-25 mix, while the minimum compressive strength was 37.6 MPa for the T-30 mix. T-30 mix have lowest compressive strength at all testing ages; and reduction in the strength can be accounted for reduced cement content in concrete mix. T-25 mix exhibits enhanced compressive strength at 28 days and 90 days which may be due to i) The concrete containing SBA reacts faster in the presence of limestone because finer limestone provides additional sites for hydration and improves the reactivity of SBA. ii) The filler effect of the limestone powder, which improves the packing density of the concrete mix. Jiangtal discovered a similar trend of strength increase induced by limestone replacement in cement with 10% limestone and 20% flyash substitution (Jiang *et al.* 2020). This agrees with finding of DeWeerd *et al.* who reported increased compressive strength when fly ash was blended with limestone and it appears that the presence of limestone in ternary cement can improve the compressive strength (De Weerd *et al.* 2011).

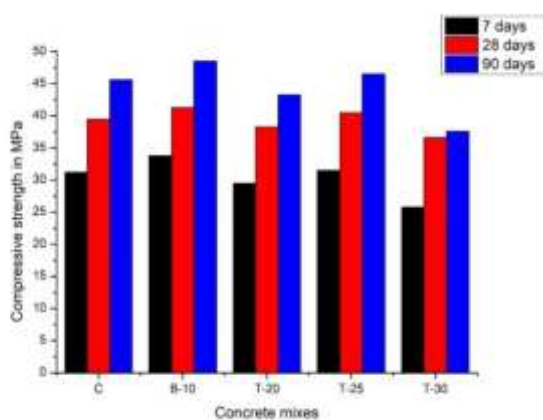


Figure 5. Compressive strength of concrete mixes at 7, 28 and 90 days of curing

4.4. Water absorption

Figure 6 shows the water absorption of all the concrete mixtures investigated at 28 and 90 days of curing, with

values ranging from 2.85% to 6.12% by dry mass. It should be observed that 28 days cured specimens absorbed the more amount of water than 90 days cured specimen. As anticipated for all concrete, the absorption capacity declined consistently with increase in curing time due to pore volume reduction caused by filling up of additional hydration products formed during hydration. The water absorption observed on 90 days samples were reduced by 48.69%, 43.7%, and 45.1% in average comparing to those on 28 days ones for mix group B-10, T-20, and T-25 mixes respectively. B-10 mix shows higher water absorption percentage than control mix at 28 days, owing to presence of porous structure in SBA which absorb and retain more water in it. Whereas scenario is reversed at 90 days, water absorption is less compared to control due to formation of additional hydration product due to pozzolanic reaction of SBA which reduce pore volume. Ganesan *et al.* observed that water absorption rises with SBA concentration in concrete cured for 28 days because of hygroscopic nature of SBA which observe more water but as curing time increases, water absorption values decreased significantly (Ganesan *et al.*, 2007).

Incorporation of limestone reduces the water absorption in SBA blended concrete. Reduction in water absorption with limestone addition in concrete was not significantly high when compared to B-10 mix upto 15% replacement. This was most likely due to the filler effect of limestone, which influences the microstructure of the concrete by enhancing packing density. Beyond 25% replacement, increase in water absorption is observed due to dilution effect.

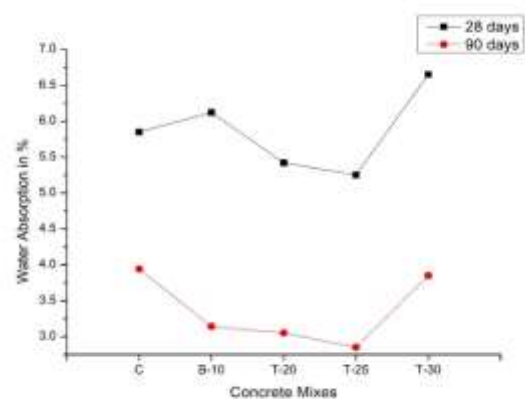


Figure 6. Water absorption at 28 and 90 days of curing

4.5. Water impermeability test

The water penetration depth was determined at 28 and 90 days as per DIN 1048-5 are displayed in Figure 7. Average water penetration depth for all mixes varies from 6.9mm to 18.5mm. At 28 days of curing, B-10 mix showed a significant reduction (25.41%) when compared to control concrete. After 90 days, B-10 mix penetration depth was decreased to 46.2% than control specimens. The test outcomes show that utilizing SBA in concrete greatly enhances the resistance of concrete to oppose water penetration. At 28 and 90 days, T25 showed least water penetration depth among other mix. Bahurudeen *et al* reported significant reduction in water penetration of SBA incorporated concrete under pressure and observed

increase in resistance to water penetration with increase in SBA (Bahurudeen *et al.*, 2015). Addition of limestone proves to be useful in improving resistance against water penetration. As a result of enhanced nucleation sites, a denser microstructure was formed with the incorporation of limestone and reduces the water penetration depth in concrete.

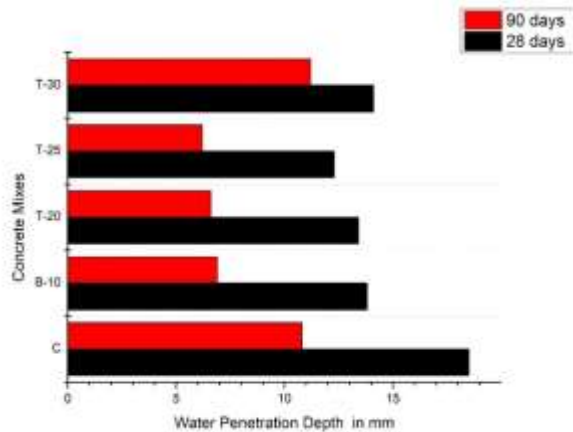


Figure 7. Water penetration depth of concrete mixes after 28 and 90 days of curing

4.6. RCPT

Figure 8 shows the results of RCPT. The charge transmitted through the control mix at 28 and 90 days of curing was 3210 and 2660 coulombs, respectively. The resistance of control mix from result obtained with respect to chloride ion penetration was classified as 'moderate' by ASTM 1202-12. Results show that the total current passed diminishes with age as the link between pores in the cementitious matrix reduces due to hydration processes. For all mixes, the accumulated charge passing values range from 3210 to 1130 coulombs at 28 days and 2660 to 745 coulombs at 90 days. In accordance with test results observed, substituting OPC with SBA and limestone resulted in a considerable drop in the charge passed. Incorporation of 10% SBA in concrete at 28 and 90 days reduces charge passed in concrete by 42% and 41.32% compared to control concrete. The discontinuous pores and pore refinement in B-10 mix as a result of pozzolanic performance cause the reduction in total charge passed. Guidelines categorize B-10 mix at 28 and 90 days as 'low' permeability. Praveenkumar *et al.* concluded that SCBA lowers chloride penetration in HPC mixtures by up to 10% replacement. The path for ions shrinks as a result of pore structure refinement caused by the pozzolanic reaction and the micro filler impact of bagasse ash (Praveenkumar *et al.*, 2021). Similar result were reported by many authors (Arenas-Piedrahita *et al.*, 2016; Bahurudeen *et al.*, 2015; Bayapureddy *et al.*, 2020). Furthermore, ternary blended concrete mixes are superior to B-10 mix in terms of resistance against chloride penetration because of its fine composition. Chloride permeability reduced as the amount of limestone increased. T-20 and T-25 mix are classified as 'very low' as per specification in by ASTM 1202-12. Dave *et al.* observed considerable reduction in total charge passed in quaternary blend than binary and control blends, which is attributable to an increase in the

volume of pozzalans in the mortar mix (Dave *et al.*, 2016). Gesoğlu *et al.* shown that substitution of limestone filler (5-10%) generally enhance the chloride penetration resistance of the ternary blended concretes (Gesoğlu *et al.*, 2012).

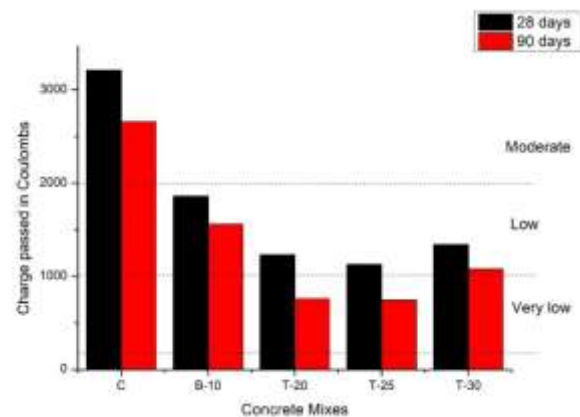


Figure 8. Total charge passed at 28 and 90 days

4.7. Sorptivity

Figure 9 illustrates sorptivity values for all concrete specimens tested at 28 and 90 days. Comparing the 28 and 90 days Sorptivity values for the control mix, no significant variation in Sorptivity value was noticed whereas in binary and ternary blended concrete marked reduction in sorptivity values at 90days was observed. For instance, after 90 days, the sorptivity for the T-25 mix was 2.33 times as small as that for the T-25 mix at 28 days whereas for the control mix was only 1.12 times as small as that for the same at 28 days. Water sorptivity of B-10 mix was reduced upto 27.81% and 61.81% compared to control mix at 28 and 90 days. This indicates that the inclusion of SBA proves helpful in improving resistance to unidirectional sorption Rajasekar *et al.* reported that regardless of curing days, a reduction in sorptivity was seen when cement substitution with treated bagasse ash increases and concluded that addition of fine elements in concrete reduces sorptivity. Amin *et al.* observed reduction in sorptivity with increasing the SBA and nano eggshell powder ratios in HPC mixes as result of C-S-H structure formed by pozzolanic reaction of SCBA (Amin *et al.*, 2022).

Inclusion of limestone in concrete reduces the sorptivity value but not notably. Maximum reduction of 13.5% and 20.8% was observed for T-25 mix at 28 and 90 days compared to B-10 mix. Ghrici *et al.* revealed that incorporation of 15% limestone with cement in concrete for the w/b ratio of 0.6. at 28 and 90 days of age decreases the sorptivity of concrete by 2% and 9%, respectively (Ghrici *et al.*, 2007). Similar result were observed by Tsvilis *et al.*, while replacing 15% of concrete with limestone at w/b = 0.7 had an negligible influence on concrete (Tsvilis *et al.*, 2003).

4.8. Electrical resistivity

Figure 10 shows the electrical resistivity test results of concrete mixes at 28 and 90 days. For all mixes, the results indicate a considerable rise in electrical resistivity with age. Electrical resistivity of control mixes at 90 days

increases by 2.4 times than electrical resistivity at 28 days. 10% SBA replacement levels improved electrical resistivity considerably and displayed increasing trends. The addition of SBA, which react with portlandite to generate more C-S-H, causes an increase in the electrical resistivity. This reaction has a direct impact on the microstructure of the concrete because the formation of additional new hydration products improves the cement matrix and reduces porosity along with pore interconnectivity. Furthermore, as a result of the continual cement's hydration, there is a pore system discontinuity that causes blockage, hinders ionic transport in the pore, and reduces the ionic concentration of the solution. Joshaghani *et al.* reported that addition of SBA in cement concrete improve the electrical resistivity concrete at 28 and 98 days (Joshaghani *et al.*, 2017).

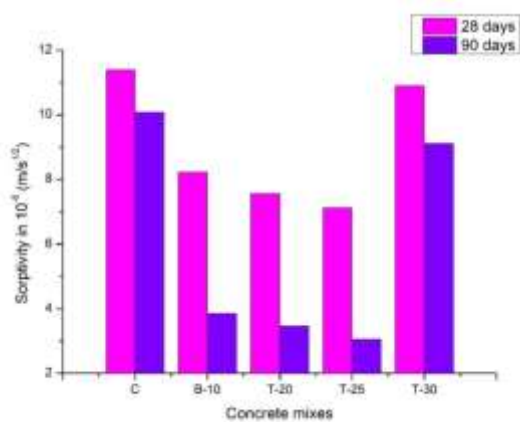


Figure 9. Sorptivity value at 28 and 90 days

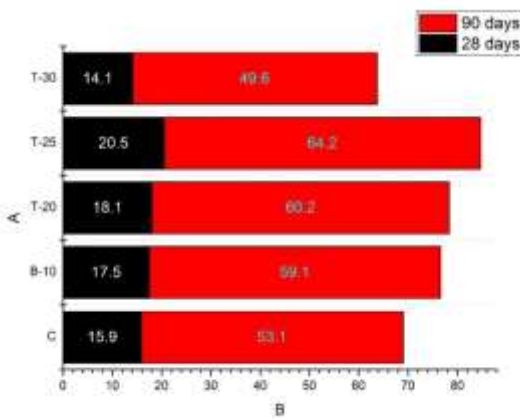


Figure 10. Electrical resistivity at 28 and 90 days

At 28 days, electrical resistivity of ternary blended concrete T-20, T-25 and T-30 mix were 18.1 kΩ cm, 20.5 kΩ cm and 14.1 kΩ cm. After 90 days, the T-25 mix had the maximum electrical resistivity of 64.2 kΩ cm and T-30 mix have the lowest electrical resistivity of 49.6 kΩ cm. Incorporation of limestone improve the electrical resistivity of ternary blended concrete. Similar result were observed (Gesoglu *et al.*, 2012).

5. Conclusions

The following observations were drawn from the investigations:

1. Substitution of cement with SBA increases the superplasticizer dosage because of the porous structure of SBA but incorporation of limestone in ternary blended concrete reduces the superplasticizer dosage. The superplasticizer dosage of B-10 concrete reduce from 2.1 to 1.5% with addition of 20% of limestone in T-30 mix
2. For all days, the compressive strength of B-10 mix was higher than the other mixes, which is 5% and 6% higher than control mix at 28 and 90 days. Maximum compressive strength for ternary blended concrete was observed for 10% SBA and 15% limestone at 28 and 90 days.
3. Water absorption for B-10 mix was higher than control mix at 28 days because of hygroscopic nature of SBA and subsequently reduced at 90days. Ternary blended concrete T-25 mix showed 27.77% less water absorption than control mix at 90 days.
4. The utilization of SBA and limestone in concrete reduces the permeability of concrete, improves the resistance to water and chloride penetration in concrete. The incorporation of limestone up to 15% in ternary blended concrete decreases its permeability. For T-25 mix, a significant reduction in permeability of 33.5 % was observed at 28 days.
5. The use of limestone and SBA in concrete contributes to its densification, resulting in pore structure refinement caused by pozzolanic activity, which improves durability properties of concrete.
6. It proved that a presence of limestone powder was adequate to improve the performance of concrete, beyond 25 % of replacement adversely affect the concrete properties.
7. Overall, the use of limestone powder can lower cement consumption, and sustainability of concrete production. It enhances compressive strength and durability properties to a greater extent for ternary blended concrete.

Recommendation on future research

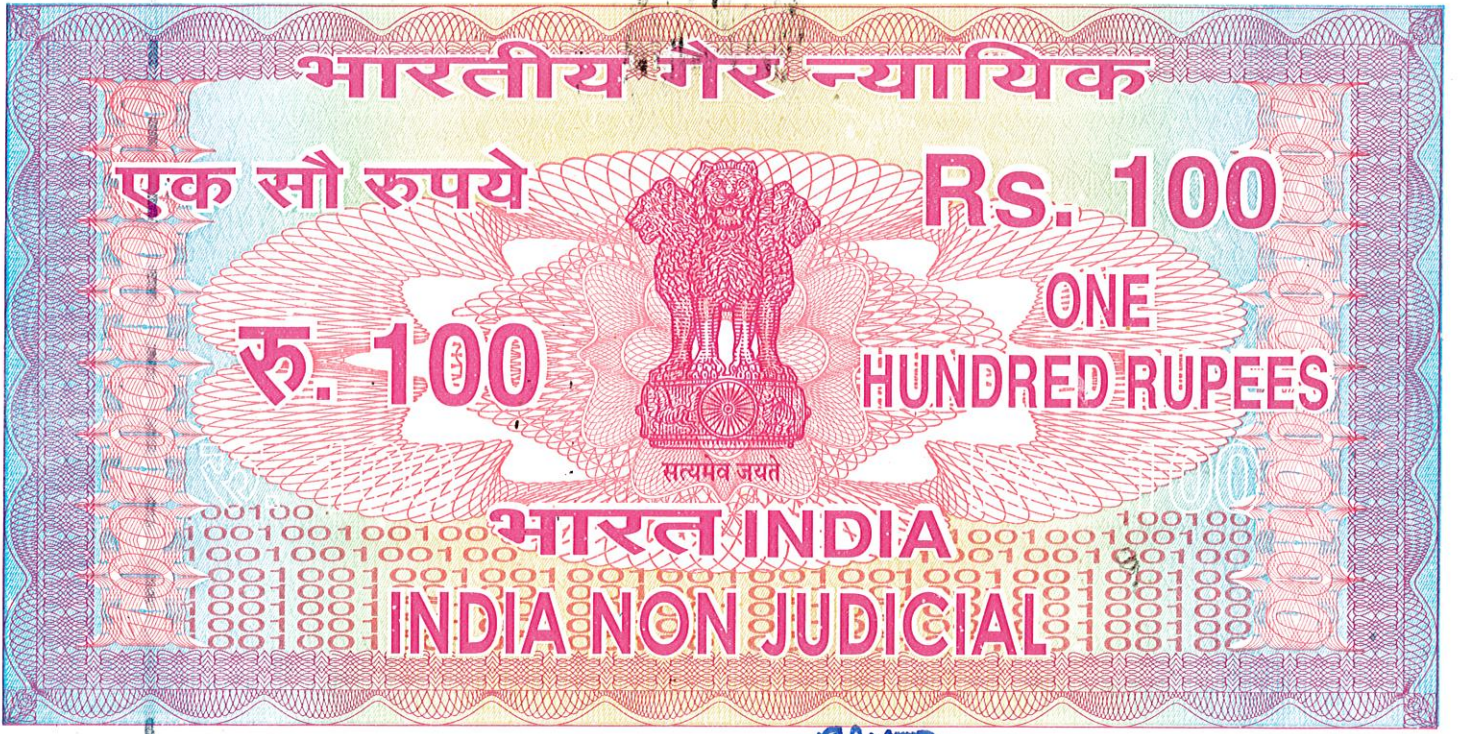
1. The effect of ternary blended cement with regard to other durability properties like steel corrosion, chloride induced corrosion and carbonation can also be studied.
2. The life-cycle assessment (LCA) of the ternary blended concrete can be studied

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COIMBATORE

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MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding ("MoU") is made on 12th day of November 2022, by and between:

Exterro, a company founded in 2004 and having its registered office at, Module No. 104, First Floor Tidel Park, Vilankurichi Road, Coimbatore - 641014, Tamil Nadu, India

AND

Department of Computer Science and Engineering, Government College of Technology, Coimbatore-641013, TamilNadu, India.

P. Thiruv

[Signature]

Exterro and Department of CSE, GCT shall be hereinafter be collectively referred to as "Parties" and individually as "Party"

WHEREAS

- A. **Exterro** is an Oregon, USA company that develops ediscovery software for corporate legal and IT teams. It has satellite offices located across the US, Europe and in India. The Exterro Fusion Platform unifies all of Exterro's E-Discovery and Information Governance solutions, giving organizations the ability to easily add new Exterro applications as business needs expand. Featuring the broadest set of integration capabilities, the Exterro platform fits seamlessly into organizations' unique IT infrastructure, regardless of whether on-premises, in the cloud or in a hybrid model and delivers the enterprise scalability, performance and security companies require to run their business.
- B. Department of CSE, GCT is committed to produce outstanding Engineers and Technologists, to provide world-class learning environment, to mould the students to meet the challenges and to equip them to contribute to the Technological, Economic and Social Development of India.
- C. The Parties wish to co-operate with each other as per the terms and conditions enumerated in this MoU.

NOW THEREFORE THE PARTIES SET FORTH THEIR PRELIMINARY UNDERSTANDING AS FOLLOWS:

1. Scope

- 1.1 The scope of this MoU is to provide a framework of reference to build a strong and on-going relationship between Exterro and Department of CSE,GCT in various areas of mutual interest and benefit.
- 1.2 The primary goals are:
 - a) To develop and foster strategic linkages between Department of CSE , GCT and the relevant technical departments at Exterro;
 - b) To work in a collaborative manner on research topics of mutual interest;
 - c) To assist the students of Department of CSE , GCT and enhance their fundamental knowledge and concepts behind some of the latest technologies in which Exterro is involved.

2. Co-ordination

- 2.1 Exterro and Department of CSE, GCT will establish a "Joint Working Group" for coordination. Both the Parties shall ensure that the Joint Working Group comprises appropriate personnel to discuss and implement the measures mentioned in this MoU;
- 2.2 Exterro shall be represented by its management, along with designated members as and when necessary;
- 2.3 GCT shall be represented by the Principal with other designated members from Department of CSE as and when necessary;
- 2.4 The Parties hereby acknowledge and agree that they shall take all reasonable steps to co-operate and ensure successful implementation of all measures mutually agreed to in the areas mentioned in this MoU.

P. Thirumala



3. Areas of Co-operation

a. Exterro Library Corner

Department of CSE, GCT shall provide sufficient space for a book shelf in their main library premises for Exterro to setup "Exterro Library Corner". Exterro will provide the book shelf depending on the space provided. Exterro will provide Technical books, CD's, DVD's with respect to Exterro technologies and products. A detailed scope for the above implementation and execution will be agreed upon by the parties in writing

b. Faculty Training:

Exterro shall provide support to GCT to ensure that the faculty members of department of CSE are trained to teach the students the latest developments in the technologies which is used by Exterro and relevant to its operations. Under this "Train the Trainer" program, Exterro shall organize guest lectures at GCT, as agreed upon by the Parties, to support the delivery of the relevant subject.

c. Curriculum Review and Enhancements:

Exterro shall support department of CSE, GCT with respect to framing of syllabi of certain courses and suggest necessary enhancements which would enable GCT to enhance the technical skills of its students. Qualified and experienced technical personnel from Exterro could be nominated to the Board of Studies in relevant areas.

d. Elective subject:

Department of CSE, GCT shall, wherever feasible and as agreed upon by the Parties, introduce an elective subject on Full stack Programming in their curriculum. In this regard, Exterro shall provide its support with respect to framing of the syllabus and organizing/conducting lectures by its domain experts to share their expertise with the students and faculty of department of CSE, GCT.

e. Technical Presentation and Discussions:

Wherever feasible and as agreed upon by the Parties, Exterro shall provide speakers to participate and deliver technical presentations and discussions on topics that would be relevant to technologies in Exterro.

f. Projects for Undergraduate and Postgraduate students:

Exterro shall explore the possibility of increased student and faculty interface by way of offering project internships for students from both, the undergraduate and postgraduate courses, depending on its need for and availability of such projects in Exterro

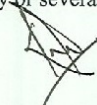
g. Sponsorship of Technical Events and Symposia at GCT:

Exterro shall sponsor and participate in technical events and symposia at GCT, the decisions for which will be taken on a case to case basis after review and discussion between the Parties. Any payment made towards sponsorship for the above will be made by Exterro towards a cheque payment in the name of the college or symposium.

h. Sponsoring of Research Projects:

Exterro shall, wherever feasible and as agreed by the Parties, sponsor research project/s for department of CSE, GCT to be executed jointly or severally.

P. Thirumala



i. Customised M.E CSE Programmes for Exterro Associates:

GCT shall offer customized M.E CSE programmes for Exterro associates who are qualified as per GCT norms to undertake such programmes. Details of the programmes could be worked out together by both the parties.

j. GCT support for Exterro training:

GCT shall provide support with its faculties and facilities for conducting training sessions for Exterro members on a case to case basis after review and discussion between the Parties.

k. Using GCT premises by Exterro:

Exterro shall use the premises of GCT, its classrooms or seminar hall for any of its recruitment events, or campus connect programs depending on the need and availability of the same. Decisions could be taken on a case to case basis after review and discussion between both the Parties.

l. Early campus recruitment slot for Exterro:

Department of CSE,GCT shall provide early slot for Exterro to conduct its campus recruitment event and select eligible students for employment. Also shall provide dream slot option for all students who are interested in working for Exterro.

m. Collaboration with Computer Science and Engineering Association(CSEA):

Exterro shall provide support to GCT CSEA related activities like conducting technical sessions, Guiding projects for social good, real time projects internships, motivating for coding competitions for GCT students after review and discussion between the Parties.

4. Terms and Termination

- 4.1 This MoU shall come in to effect from **12th day of November 2022**, and shall remain in effect for a period of thirty six (36) months, unless terminated earlier by the Parties. Any amendment to this MoU, pursuant to mutually agreed revisions of the terms, by the Parties, shall be in writing and signed by both the Parties.
- 4.2 Either Party shall have the right to terminate this MoU by giving thirty (30) days prior written notice to the other Party.

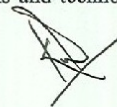
5. Confidentiality

- 5.1 Neither Party shall, without the prior written consent of the other Party disclose to any third party the contents of this MoU or any information obtained by either Party in performance of or in connection with this MoU. The Parties agree to take all reasonable measures to maintain the confidentiality of all such Confidential Information which in no event will be less than the measures it uses to maintain the confidentiality of its own information of similar importance.
- 5.2 The obligations of confidentiality shall come into effect upon the signing of this MoU and shall survive even after the termination of this MoU.

6. Property Rights:

- 6.1 Both Parties shall retain their respective rights with respect to any equipments, methodologies, tools and technologies provided hereunder for the purpose of this MoU. Both Parties will ensure that such equipments, methodologies, tools and technologies are used solely for the purpose set out in this MoU.

P. Thiruv



7. Liability

- 7.1 NEITHER PARTY SHALL BE LIABLE FOR ANY DIRECT, INDIRECT OR CONSEQUENTIAL LOSS, DAMAGE, COST OR EXPENSE OF ANY KIND WHATEVER AND HOWEVER CAUSED WHETHER ARISING UNDER STATUTE, CONTRACT AND TORT OR OTHERWISE THIS MOU

8. Arbitration

- 8.1 In the event of any dispute or differences arising at any time between the Parties hereto as to the construction, meaning or effect of this Agreement or any clause or thing contained herein or the rights, duties, liabilities and obligations of the Parties hereto or breach thereof, the parties shall in good faith endeavor to resolve the dispute by mutual discussion. In the event, the parties are unable to do so, the matter will be settled by arbitration subject to the provision of the Arbitration and Conciliation Act, 1996 and as amended from time to time. The Parties agree shall mutually endeavor to appoint a single arbitrator, within a period of thirty (30) days upon being called upon to do so. In the event, the Parties fail to appoint a single arbitrator, by mutual agreement, each Party will appoint one arbitrator and the two arbitrators so appointed will appoint a third arbitrator to whom the dispute will be referred for resolution. The arbitration proceedings shall be in English and held in Coimbatore and in accordance with the Arbitration and Conciliation Act 1996 and as amended from time to time.

9. Governing Law and Jurisdiction.

- 9.1 This MoU shall be governed by the laws of Republic of India. Any dispute arising in connection therewith shall be submitted only to the Courts in Coimbatore, India.

10. Non Solicitation

- 10.1 GCT shall not directly or indirectly solicit, or cause to be solicited the employment of any employee of Exterro, who is involved in the performance of its obligations under this MoU.

11. Binding

- 11.1 This MoU shall be binding on the Parties.
- 11.2 The Parties hereby acknowledges that this MoU is confined to the general terms agreed between the Parties for mutual co-operation.



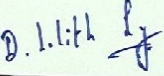

12. Entire Understanding

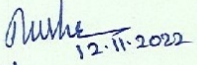
This MoU contains the entire understanding of the Parties with respect to the subject matter addressed herein and supersede, replace and merge all prior understandings, promises, representations and agreements, whether written or oral, relating thereto.

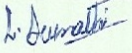
P. Th



Agreed to:

Exterro		Department of Computer Science and Engineering, Government College of Technology, Coimbatore	
Signature 1		Signature 1	
Name	Dr. KAVITHA THANGASAMI	Name	Dr. P. THAMARAI
Designation	Chief Research & Development Officer	Designation	Principal
Place		Place	Coimbatore
Date	12-11-2022	Date	Coimbatore 12.11.22
Signature 2		Signature 2	
Name	D. LALITH SAJAN	Name	Dr. J.C. MIRACLIN JOYCE
Designation	HR. Director	Designation	Professor & HOD
Place	Coimbatore	Place	Coimbatore
Date	12-11-22	Date	


 12.11.2022
 Witness-1:
 Dr. S. USHA, AP/Mech,
 MOU coordinator, GCT,
 Coimbatore - 641013.


 Witness-2:
 L. SUMANATH, AP/CSE,
 GCT, CBE-13

23/08/2023

Sp1
28/8/23
Submitted to the Principal

Sub: IIC – MoU (Exterro) – 1 day workshop on “JAVA - The Industry Perspective” – reg

It is proposed to conduct a one day workshop on “JAVA - The Industry Perspective” on 2nd September 2023. The participants are students from CSE and IT Department (3rd years). The number of participants is 125. Hence it is requested to kindly grant permission and financial approval under IIC. The approximate expenditure of the workshop is submitted herewith for your kind perusal. It is also requested to kindly do the needful to get the advance amount.

S. No	Particulars	Amount in (Rs)
1	TA and DA for Experts	800
2	Printing	1100
3	Refreshment (125×20) <i>students</i> <i>For Faculties</i>	2500 600
TOTAL (Five thousand only)		5000

23/8/23
COORDINATORS
Dr. R. DEVI
Prof. L. SUMATHI

23/8/23
CONVENOR
Dr. S. RATHI

ANNEXURE A

One day workshop on "JAVA - The Industry Perspective "
organized by Department of IT and CSE, Government College of Technology, Coimbatore
along with Exterro under IIC on 02/09/2023

Sl. No.	Particulars	Amount
1	Expenditure as per consolidated statement	

ABSTRACT OF THE EXPENSES

Sl. No.	Particulars	Expenditure
COMMON EXPENSES		
I	Certificate printing (Sub Total-1)	900
II	Xerox and Spiral binding (Sub Total-2)	130
REFRESHMENT EXPENSES		
I	Students (Sub Total-3)	2748
II	Faculties (Sub Total-4)	240
	Total	4018

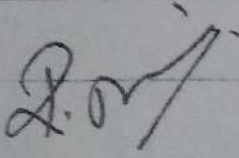
L.O.

EXPENSE DETAILS -CONSOLIDATED

Date	Bill no	Details	Supplier	Amount	P. No
<u>COMMON EXPENSES</u>					
I. Certificate printing					
01/09/2023		Certificate	Star Xerox	900	1
				SUBTOTAL-1	900
II. Xerox and Spiral binding					
20/09/2023	1356	Xerox	City Xerox	40	1
20/09/2023	1356	Spiral binding	City Xerox	90	1
				SUBTOTAL-2	130

REFRESHMENT EXPENSES

Date	Bill no	Details	Supplier	Amount	P. No
I. Students					
02/09/2023	9333	Tea and Vadai	GCT canteen	2700	2
02/09/2023	9333	Water bottle	GCT canteen	48	2
				SUBTOTAL-3	2748
II. Faculties					
02/09/2023		Tea	Shree Devnarayan Tea Stall	120	3
02/09/2023		snacks	Shree Devnarayan Tea Stall	90	3
02/09/2023		Water bottle	Shree Devnarayan Tea Stall	30	3
				SUBTOTAL-3	240





CASH BILL

Siva Marson, 1st street
Gandhigram,
Coimbatore - 641-012
Ph : 0422 - 45423 63
+91 99439 90682
+91 98430 20099

M/s. PRINCIPAL (Co.) No. :
Coimbatore Date: 1/9/23

S.No.	Particulars	Qty.	Amount
1.	Certificate	128	900
PAID			L 900/-

For THREE STAR XEROX
[Signature]

Mob : 95975 45555
City Xerox
351, Thadagam Road, Opp. G.C.T. College,
Coimbatore - 641 013. E-mail : cityxerox1122@gmail.com

CASH BILL

No. 1353 Date: 20/9/23
To :

S. No.	Particulars	Amount
	A4 XEROX	4000
	3 Spiral Binding Chry	9000
		13000

For City Xerox
[Signature]

This amount is used for Java workshop 21/9/23 which is paid by me. *[Signature]*

No. 9333

CASH BILL

Date 2/9/23

GOVERNMENT COLLEGE OF TECHNOLOGY
Non-Residential Students' Centre
COIMBATORE - 13

To
Thiru

The Principal Act CLC13

S. No.	Description	Amount
	Towards the supply of Tea & Vadam Water Bottle on 2/9	
	Sp. Tea & Vadam 135 x 20/-	2700.00
	Water bottle - 6 x 8.00	48.00
		<u>2748.00</u>

(Rs Two Thousand Seven hundred
and Forty Eight only)

For P. Murahideem
Superintendent
P. Murahideem

This amount is used for Java Workshop 2/9/23
which is paid by me. Govind

CASE / CREDIT MEMO

Shree Devnarayan Tea Stall
 1464, Thadagam Road, No. : _____
 Near G.C.T. Coimbatore-13. Date: 02/9/23
 M/s: The Principal, GCT, CISE-13.

Description	Qty.	Rate	Amount
Tea	-		120/-
Snacks	-		90/-
water bottles	3-		30/-
Thank You!		Total:	240/-

* Goods once sold will not be taken back.
 Issued by: _____ Received by: *[Signature]*

This amount is used for Java workshop 2/9/23
 which is paid by me *[Signature]*

Department of Information Technology

Government College of Technology

Coimbatore

Java - The Industry Perspective Workshop

Attendance Sheet 02/09/2023

RollNo	Name	Signature
71772118101	ABHIJAY S	Abhi
71772118102	AKALYA S	Akalya
71772118104	ARUN KUMAR M	M. Arun Kumar
71772118105	BALASAKTHI A	Balasa
71772118106	BHARATH S	B. Bharath
71772118107	DEEPIKA R	Deepika
71772118109	DHARINI C	C. Dhara
71772118110	GURU M	M. Guru
71772118111	GURUSWATHI B	B. Guruswathi
71772118112	HARIPRIYA V G	V. G. Haripriya
71772118113	HARISH S	S. Harish
71772118114	HARSHINI PRIYANNA S	S. Harshini Priyanna
71772118115	HASHINI B A	B. A. Hashini
71772118116	JEEVANANTHAM P	P. Jeevanantham
71772118117	JENIFA D	D. Jenifa
71772118118	JEYAKEERTHANA M	M. Jeyakeerthana
71772118119	KALVIKARASI R	R. Kalvikarasi
71772118120	KARTHIKA J	J. Karthika
71772118121	KARTHIKA M	M. Karthika
71772118122	KEERTHANA S	S. Keerthana
71772118123	KIRUTHIKA K	K. Kiruthika
71772118124	KIRUTHIKAA T	T. Kiruthika
71772118125	LOGESHWARAN V V	V. V. Logeswaran
71772118126	MAITHIREYAN S	S. Maithireyan
71772118127	MERLIN DEBORAH S	S. Merlin Deborah
71772118128	MUTHU LAKSHMI P	P. Muthu Lakshmi
71772118129	MUTHUMAHA S	S. Muthumaha
71772118130	NANDHINI P	P. Nandhini
71772118131	NASEEHAA	A. Naseeha
71772118132	NITHISH KUMAR G	G. Nithish Kumar
71772118133	NIVITHA T	T. Nivitha
71772118134	PRIYADHARSHINI K	K. Priyadharsini
71772118135	PRIYANGA S	S. Priyanga
71772118136	SANJAY S	S. Sanjay
71772118137	SARAVANAKUMAR K	K. Saravanan Kumar
71772118138	SEDHU RAM P	P. Sedhu Ram
71772118139	SHARMILI J	J. Sharmili
71772118140	SHUNMUGA PRIYA R	R. Shunmuga Priya
71772118141	SNEHA M	M. Sneha

71772118142	SOUNTHARARAJA S	<i>S. Sounthar</i>
71772118143	SOWMIYAA	<i>A. Sowmya</i>
71772118145	SRIDHAR E	<i>E. Sridhar</i>
71772118146	SRIDHARSHINI L	<i>L. Sridharshini</i>
71772118147	SUNIL KUMAR S	<i>S. Sunil Kumar</i>
71772118148	SWETHAA R	<i>R. Swetha</i>
71772118149	TAMIL SELVI A	<i>A. Tamil Selvi</i>
71772118150	THANMUGHIL D K	<i>D. Thanmughil</i>
71772118151	VAISHNAVI N	<i>N. Vaishnavi</i>
71772118152	VIGNESH S	<i>S. Vignesh</i>
71772118301	GIRIDHARAN M	<i>M. Giridharan</i>
71772118302	MADHAN D	<i>D. Madhan</i>
71772118L01	ABILASH V	<i>V. Abilash</i>
71772118L02	ARUN KUMAR S	<i>S. Arun Kumar</i>
71772118L05	DHINAGARAN S	<i>S. Dhinakaran</i>
71772118L06	KUPPUSAMY M	<i>M. Kuppusamy</i>
71772118L07	SABITHA S	<i>S. Sabitha</i>
71772118L08	SARAVANAKUMAR V	<i>V. Saravanan Kumar</i>
71772118L09	SATHISH P	<i>P. Sathish</i>
71772118L10	TAMIZHARASU M	<i>M. Tamizharasu</i>
71772118L11	VIMALESH M P	<i>M. P. Vimalesh</i>

L. Sounthar
2/9/23

S. P. M.
Faculty Incharge

GOVERNMENT COLLEGE OF TECHNOLOGY
COMPUTER SCIENCE AND ENGINEERING
STUDENTS WORKSHOP ON JAVA (Industry Perspective)
Attendance Sheet 2/09/2023

S. NO	REGISTER NO	NAME	SIGNATURE
1	71772117101	ABHILASH G	G. Abhilash
2	71772117102	ABINAYA V	Abinaya V
3	71772117103	ANUMITHA R D	R.D. Anumitha
4	71772117104	ARIVUMATHI P K	Arivumathi P.K.
5	71772117105	BALAJI R A	R.A. Balaji
6	71772117106	BARATHKUMAR K	K. Barathkumar
7	71772117108	CATHLYN JEB A GOLDY T	T. Goldy Cathlyn
8	71772117109	CHANDRU A	A. Chandru
9	71772117110	DIVYA J SHANKAR	Divya J. Shankar
10	71772117111	GIRIDHARAN S	S. Giridharan
11	71772117113	HARIHARAN S	S. Hariharan
12	71772117114	HEMA Y	Y. Hemathy
13	71772117115	INBA THAMIZHAN V	V. Inbamthamizhan
14	71772117116	ISHAN SHARMA	Sharma Ishan
15	71772117117	JANANI G	G. Janani
16	71772117118	JERIN RICHIE D	D. Jerin Richie
17	71772117119	KARTHIKEYAN S	S. Karthikeyan
18	71772117120	KOMATHILAKSHMI D	D. Komathilakshmi
19	71772117121	KURAPATI RAGA PRIYANKA	Priyanka Raga
20	71772117122	LEELAVATHI S	S. Leelavathi
21	71772117123	MADHUMITHA B J	J. Madhumitha
22	71772117125	MARIESWARAN P	P. Marieswaran
23	71772117126	MEGAVANNAN M D	D. Megavannan
24	71772117127	MUGUNTHAN S	S. Mugunthan
25	71772117128	NITISH BHARDWAJ	J. Nitish Bhardwaj
26	71772117129	PADMAPRIYA V	V. Padmapriya
27	71772117131	POORNASRI P	P. Poornasri
28	71772117132	PREETHI G	G. Preethi
29	71772117133	PRIYANKA S	S. Priyanka
30	71772117134	RAJESWARI P	P. Rajeswari
31	71772117135	RUTHRA L	L. Ruthra
32	71772117136	SAKTHIVEL K	K. Sakthivel
33	71772117138	SANDHIYA S	S. Sandhya
34	71772117139	SHEELA JEMI L	L. Sheela Jemi
35	71772117140	SIVARANJANI S	S. Sivaranjani

S. NO	REGISTER NO	NAME	SIGNATURE
36	71772117141	SIVASANKARI M	M. Sivasankar
37	71772117142	SOWNDIARYA M	M. Sowndiary
38	71772117143	SRIKANTH B	B. Srikanth
39	71772117144	SUDHARSAN M	S. Sudharsan
40	71772117145	SUVATHY A	A. Suvaty
41	71772117146	THOUFEEQ A	A. Thoufeeq
42	71772117147	VAITHEESHWARAN S	S. Vaitheeswaran
43	71772117148	VINOTHINI S	S. Vinothi
44	71772117149	VISHAL N	N. Vishal
45	71772117150	VISWESWARAN G S	G. S. Visweswaran
46	71772117151	YAZHINI K	K. Yazhini
47	71772117152	ABHIRAJ SINGH	A. Singh
48	71772117153	KENEISOU KEDITSU *	K. Kenison
49	71772117301	DEEPIKAA V	V. Deepika
50	71772117302	DIVAAGAR R B	← ABSENT →
51	71772117303	JANA S	S. Jan
52	71772117304	KARUNASRI A	A. Karunashri
53	71772117305	KAYALVIZHI T	T. Kayalvizhi
54	71772117306	KEERTHANA R	R. Keerthana
55	71772117307	KOKULAVENKAT K	K. Kokulavenkat
56	71772117308	KOUSIKA J	J. Kousika
57	71772117309	MENAKA A	A. Menaka
58	71772117310	MUHAMAD HANEEF J	J. Muhamad Haneef
59	71772117311	NIKITHA P	P. Nikitha
60	71772117312	PRADEEPRAJ V S	V. S. Pradeepraj
61	71772117313	VENKATESAPERUMAL R	R. Venkatesaperumal
62	71772117L01	AKILAN B	B. Akilan
63	71772117L02	ARAVINTH M	M. Aravinth
64	71772117L03	BOOPATHI HARI R	← ABSENT →
65	71772117L04	SUGASH M	← ABSENT →
66	71772117L05	YOGESHWARI L	L. Yogeshwari

L. Ananthi
Co-ordinators
21/9/23

S. O. V.

Savjay S

7 more responses are hidden

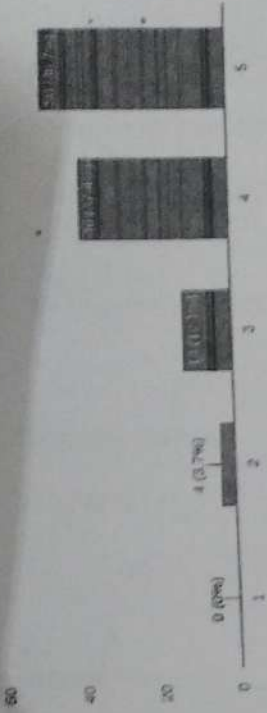
Course

107 responses

- B.Tech
- B.E



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The content was organized and easy to follow. (5- Best, 1 - Worst)

107 responses

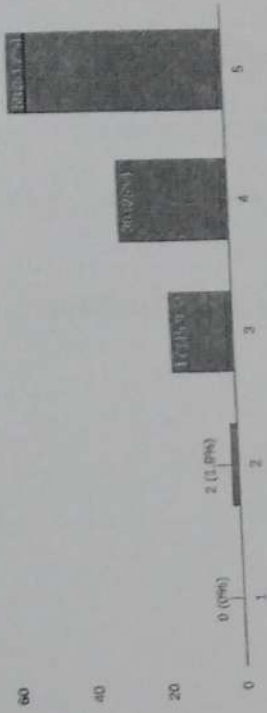
Stream

107 responses

- Information Technology
- Computer Science



Copy



Copy

The experts met the training objectives. (5- Best, 1 - Worst)

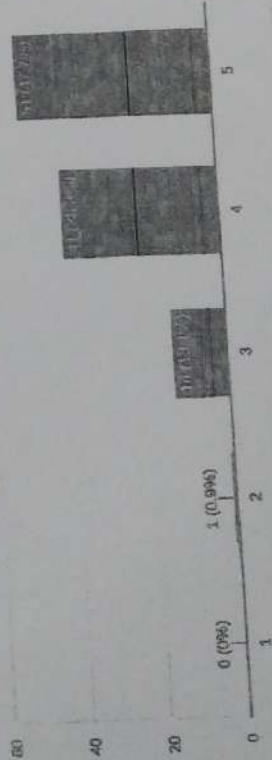
107 responses

The training met my expectations.

107 responses

Copy

5- Best, 1 - Worst



Java student Workshop feedback

Thank you for participating in our event. We hope you had as much fun attending as we did organizing it.

We want to hear your feedback so we can keep improving our content. Please fill this quick survey and let us know your thoughts).

The respondent's email (soun.71772118142@gct.ac.in) was recorded on submission of this form.

Register Number *

71772118142

Name *

SOUNTHARARAJA S

Course *

B.Tech

B.E

Stream *

Information Technology

Computer Science

Feedback, gifts and certification:



भारतीय गैर न्यायिक

बीस रुपये

रु.20

Rs.20

TWENTY
RUPEES

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு தமில்நாடு TAMIL NADU

21.11-2022

Immanuel John Samuel
Coimbatore.

R. Itean

11AC 062199

ரா. மீனா

மெக்ஸ்டைர தூள் நிற்பனையாளர்
உ. பி.டி. எண் : 7333/B1/97/இ2
2-A, சிண்டியாநகர், வடவள்ளி,
தெய்யம்படுத்தூர் - 41, தமிழ்நாடு



MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter called as the 'MOU') is entered into on this th November, Two thousand and Twenty Two (25/11/2022), by and between M/s EL ADVANCED AUTOMATION, a System Solution Provider of Drives & Automation and Power Engineering having its registered office located at No.25, TAUTA Nagar, Thondamuthur Road, Vadavalli, Coimbatore, Tamil Nadu 641041 represented herein by its Proprietor, Dr. P. Immanuel John Samuel (hereinafter referred to as "ASSOCIATE")


GOVERNMENT COLLEGE OF TECHNOLOGY
Principal

Government College of Technology Page 1 of 4
Coimbatore -641 013.


M/s EL ADVANCED AUTOMATION

Dr. P. IMMANUEL JOHN SAMUEL M.E., Ph.D.,
Chief Executive - Operation
EL Advanced Automation
Coimbatore - 641 041

AND

Government College of Technology, Thadagam Road, Coimbatore - 641013, Tamil Nadu, India (hereinafter referred to as "INSTITUTION")

WHEREAS:

- A) ASSOCIATE is the prime partner of INITIATIVE program as well as Recruitment and Training partner.
- B) ASSOCIATE is engaged in education, skill development, industries and institutions expected training and online skill development training. The primary objective of MoU is to prepare students of following programmes for industry related skills and enable them to be readily employable in the CORE INDUSTRY as well as to become an ENTREPRENEUR.
Under Graduate Programme - B.E. (Electrical and Electronics Engineering) &
Post Graduate Programmes - M.E. (Power System Engineering)
M.E. (Power Electronics and Drives)
- C) The plan is to train the students as per industry requirements and then open the candidature for the internship to the industries. The industries can engage the students on their projects who can be productive from day one.
- D) INSTITUTION & ASSOCIATE believe that collaboration and co-operation between themselves to promote more effective use of each of their resources and provide each of them with enhanced opportunities.
- E) Both Parties, being legal entities in themselves desire to sign this MOU for advancing their mutual interests.

NOW THEREFORE, IN CONSIDERATION OF THE MUTUAL PROMISES SET FORTH IN THIS MoU, THE PARTIES HERETO AGREE AS FOLLOWS:

CLAUSE 1
CO-OPERATION

- 1.1 ASSOCIATE and INSTITUTION are united by common interests, objectives, and they shall establish channels of communication, co-operation that will promote and advance their respective operations. The Parties shall keep each other informed of potential opportunities and shall share all information that may be relevant to secure additional opportunities for one another.
- 1.2 ASSOCIATE and INSTITUTION co-operation will relate effective utilization of the intellectual capabilities of the faculty of ASSOCIATE providing significant inputs to them in developing suitable teaching / training systems, keeping in mind the needs of the industry.
- 1.3 ASSOCIATE plans to commence initiative programmes at both party premises relying on the infrastructure facilities that the Initiative program needs.
- 1.4 The INSTITUTION shall provide the available infrastructure, workable space/room & basic amenities such as electricity, water, telephone etc., suitable and ready for delivering the training courses and other activities in conjunction with the ASSOCIATE in the scope
- 1.5 INSTITUTION may compulsorily impart 2nd and 3rd year students of UG programme & 1st year and 2nd year of PG programmes for internship training programme. The other initiative programs will be imparted time to time upon both parties discussion.

**CLAUSE 2
SCOPE OF THE MOU**

2.1 The budding graduates / engineers from the institutions could play a key role in technological up gradation, innovation and competitiveness of an industry. Both parties believe that close co-operation between the two would be of major benefit to the student community to enhance their skills and knowledge.

2.2 **ASSOCIATE** is going to conduct the following initiatives with the support of **INSTITUTION**

- Support to Board of Studies
- Faculty Development Programmes
- Internship programmes
- Workshop and Hands-on Training on core subject
- Entrepreneurial and Skill Development Workshop
- Knowledge partner with industries
- Collaborative Research with Industry and Institution

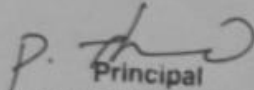
**CLAUSE 3
INTELLECTUAL PROPERTY**

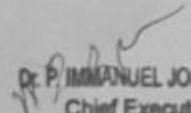
3.1 Nothing contained in this MoU shall, by express grant, implication, Estoppels or otherwise, create in either Party any right, title, interest, or license in or to the intellectual property (including but not limited to know-how, inventions, patents, copy rights and designs) of the other Party.

**CLAUSE 4
VALIDITY**

4.1 This Agreement will be valid until it is expressly terminated by either Party on mutually agreed terms, during which period **INSTITUTION** or **ASSOCIATE**, as the case may be, will take effective steps for implementation of this MoU. Any act on the part of **INSTITUTION** or **ASSOCIATE**, after termination of this Agreement by way of communication, correspondence etc., shall not be construed as an extension of this MoU.

4.2 **ASSOCIATE** and **INSTITUTION** may terminate this MoU upon 180 calendar days' notice in writing. In the event of Termination both parties will have to discharge their obligations.


Principal
Government College of Technology
GOVERNMENT COLLEGE OF TECHNOLOGY
Coimbatore -641 013.


Dr. P. IMMANUEL JOHN SAMUEL M.E., Ph.D.,
Chief Executive - Operation
EL Advanced Automation
M/s EL ADVANCED AUTOMATION
Coimbatore -641 041



CLAUSE 5

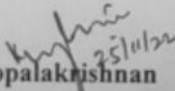
RELATIONSHIP BETWEEN THE ASSOCIATE and INSTITUTION

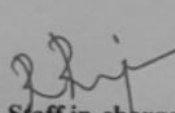
5.1 It is expressly agreed that ASSOCIATE and INSTITUTION are acting under this MoU as partners. Neither Party is authorized to use the other Party's name in any way, to make any representations or create any obligation or liability, expressed or implied, on behalf of the other Party, without the prior written consent of the other Party. Neither Party shall have, nor represent itself as having, any authority under the terms of this MoU to make agreements of any kind in the name of or binding upon the other Party, to pledge the other Party's credit, or to extend credit on behalf of the other Party.

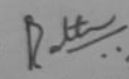
AGREED:

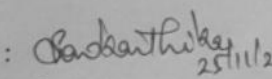
For M/s EL ADVANCED AUTOMATION For GOVERNMENT COLLEGE OF TECHNOLOGY

 Authorized Signatory	 Authorized Signatory Principal
M/s EL ADVANCED AUTOMATION	Dr.P.THAMARAJ Government College of Technology
No25, TAUTA Nagar, Thondamuthur Road,	THE PRINCIPAL, Coimbatore -641 013.
Vadavalli	GOVERNMENT COLLEGE OF
Coimbatore - 641041	TECHNOLOGY,
Tamilnadu, India	Thadagam Road
Website: www.elautomation.in	Coimbatore
Email: info@elautomation.in	Tamilnadu, India - 641013
	Website: www.gct.ac.in
	Email: principal@gct.ac.in


Dr. V. Gopalakrishnan
Professor & Head /Dept. of Electrical and Electronics Engg.,
Government College of Technology
Coimbatore - 641013


Staff in-charge
Dr. R. Rajeswari
Professor (CAS)/Dept. of Electrical and Electronics Engg.,
Government College of Technology
Coimbatore -641013

Witness1 : 
Name : Sujatha Balaraman
Signature : Professor /EEE
ACT, CBE

Witness2 : 
Name : S. SOWKARTHIKA, AP/EEE
Signature : GCT- COIMBATORE.

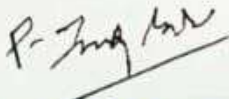
10.08.2023

CERTIFICATE

This is to certify that Ms Nikila C, M.E (Power Electronics and Drives) of Government College of Technology has undergone internship training for Transformer, VCB and Drives commissioning in our company from Jul 24, 2023 to Aug 02, 2023 - Aug 07, 2023 to Aug 09, 2023.

During this period her code and conduct was good.

For EL Advanced Automation



Dr. P. EMMANUEL JOTHI SAMUEL M.E., Ph.D.
Chief Executive - Operation
EL Advanced Automation
Coimbatore - 641 041



MEMORANDUM OF UNDERSTANDING (MOU)

BETWEEN

TICEL BIO PARK LIMITED
CHENNAI
(COMPANY INCORPORATED UNDER COMPANIES ACT 1956)

&

GOVERNMENT COLLEGE OF TECHNOLOGY &
DEPARTMENT OF INDUSTRIAL BIOTECHNOLOGY, Coimbatore
(An Autonomous Institute Affiliated to Anna University, Chennai)



9-11-2022 தமிழ்நாடு தமில்நாடு TAMILNADU
THR. PRINCIPAL G.C.T
COIMBATORE

₹. 100

CU 389635

Z. Mary Evangelin Resa
I. MARY EVANGELIN REBA
STAMP VENDOR
126-A, Ramalinga Colony,
M.T.P. Road, Coimbatore - 43
L No : 7333/B1/97F3

MEMORANDUM OF UNDERSTANDING

M/s. TICEL Bio Park Limited, a company incorporated under the Indian Companies Act, 1956, having its registered office at Taramani Road, Taramani, Chennai – 600 113, represented herein by its Managing Director, Mr. P. Poongumaran, (hereinafter referred to as "First Party", company which expression, unless excluded by or repugnant to the subject or context shall include its successors – in-office, administrators and assigns).

And

Government College of Technology, along with Department of Industrial Biotechnology of GCT having its registered office at Coimbatore, represented herein as GCT (hereinafter referred to as "Second Party", company which expression, unless excluded by or repugnant to the subject or context shall include its successors – in-office, administrators and assigns).

P. Poongumaran

Z. Mary Evangelin Resa

WHEREAS TICEL declares, confirms and represents that it is the absolute owner of the land having acquired the same by way of Government Order No:225 **Revenue Department** 24 dated 12.5.2003 annexed hereto as Exhibit-I for the establishment of a Bio technology park the "TICEL Bio Park Limited" situated at No.5, CSIR Road, Taramani, Chennai – 600 113, Tamil Nadu hereunder and has full, valid and requisite authority and power to enter into this Lease Deed to lease the Demised Premises (defined below) to Lessee.

WHEREAS TICEL Bio Park Limited had developed Biotech Common Instrumentation Facility at TICEL Bio Park – Phase II at Chennai to be used **for BIO R&D Startups.**

GCT Coimbatore is The Government College of Technology, Coimbatore formerly known as Arthur Hope College of Technology, was started in July 1945. It is located on the Thadagam road, Coimbatore – 641013. **The department of Industrial Biotechnology is one of the youngest departments of GCT. Started in the year 2002, it offers a full time B.Tech Program in Industrial Biotechnology with a sanctioned intake of 120.**

Parties believe that collaboration and co-operation between themselves will promote more effective use of each of their resources and provide each of them with enhanced opportunities.

- A. The Parties intent to cooperate and focus their efforts on cooperation within area of Skill Based Training, Technology collaboration, start-ups mentoring and Education and Research including promote interaction and collaboration.
- B. Both Parties, being legal entities in themselves desire to sign this MOU for advancing their mutual interest;

NOW THEREFORE, IN CONSIDERATION OF THE MUTUAL PROMISES SET FORTH IN THIS MOU, THE PARTIES HERETO AGREE AS FOLLOWS:

1. CO-OPERATION

- 1.1 Both Parties are united by common interests and objectives, and they shall establish channels of communication and co-operation that will promote and advance their respective operations within the Institution and its related wings. The Parties shall keep each other informed of potential opportunities and shall share all information that may be relevant to secure additional opportunities for one another.
- 1.2 First Party and Second Party co-operation will facilitate effective utilization of facilities between the parties providing significant contributions to

P. Thiruv



industries and other institutes in developing suitable teaching / training systems, keeping in mind the market demand.

1.3 The general terms of co-operation shall be governed by this MoU. The Parties shall cooperate with each other and shall, as promptly as is reasonably practical, enter into all relevant agreements, deeds and documents (the 'Definitive Documents') as may be required to give effect to the actions contemplated in terms of this MoU. The term of Definitive Documents shall be mutually decided between the Parties. Along with the Definitive Documents, this MoU shall represent the entire understanding as to the subject matter hereof and shall supersede any prior understanding between the Parties on the subject matter hereof.

2. No Partnership or Agency:

2.1 The Parties are independent contractors. Neither Party shall have any right, power or authority to enter into any agreement, or incur any obligation or liability, for, or on behalf of, the other. Nothing in this MOU shall be interpreted or construed to create an association or partnership between the Parties, deem them to be persons acting in concert, or to impose any liability attributable to such relationship to either of them, nor shall either Party be deemed to be the agent of the other, or entitled to commit or bind the other Party, in any manner, for any purpose.

2.2 Nothing in this MoU shall create or be deemed to create any third-party beneficiary rights in any Person not a party to this MOU.

3. SCOPE OF THE MoU

3.1. Co-Incubation opportunities: The two parties will explore opportunities of co-incubation with mutual sharing of equipments and resources, mentorship, market access.

3.2. Joint academic activities and events: Department of Industrial Biotechnology and GCT & TICEL Bio Park may formulate joint academic activities such as short course, seminars, workshops, or conferences based on mutual interests and available expertise in both the institutions, in areas of Skill

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Signature

Based Training, Technology collaboration, start-ups mentoring and Education and Research including promote interaction and collaboration.

- 3.3. The speciality of TICEL Biopark in the field of Biotech/Pharma will help the Department of Industrial Biotechnology at large. It will engage in the delivery of skill development and industrial training, placement of the students in core companies.
- 3.4. They may also share and carry out joint research in technology for distance and vocational and computer-based learning. Students also can utilize the infrastructure and other facilities available in the TICEL Biopark campus for the student project at nominal cost.
- 3.5. There can be financial commitment on the part of both parties to take up any program mentioned in the MoU and can be dealt separately.

4. REPRESENTATIONS AND WARRANTIES:

Each Party hereby represents and warrants that:

- a) it is duly organized and validly existing under applicable laws;
- b) it has full power and authority to execute and deliver this MOU;
- c) its signatory is duly authorized to execute this MoU for and on behalf of the relevant Party; and
- d) it has all the requisite legal and organizational power to carry out and perform its obligations under the terms of this MOU.

5. CONFIDENTIALITY

Each Party shall treat and ensure that its directors, partners, members, office bearers, officers, managers, members, employees, legal, financial and professional advisors (collectively, "**Representatives**") shall treat as strictly confidential, and not reveal to any third party without the prior written consent of the other Party, any confidential information received or obtained from the other Party as a result of entering into or performing this MOU.

Exceptions: The provisions of this Article shall not apply to:

- a. disclosure of information that is or becomes generally available to the public other than as a result of disclosure by or at the direction of a Party or any of its Representatives in violation of this MOU.
- b. disclosure by a Party to its Representatives provided such Representatives are bound by similar confidentiality obligations.
- c. disclosure, after giving prior notice to the other Party to the extent practicable under the circumstances and subject to any practicable arrangements to protect confidentiality, to the extent required by law or legislative or judicial or regulatory process.

6. INTELLECTUAL PROPERTY

- 6.1. All intellectual property rights of a Party developed/acquired prior to or independently of this MOU ("**Pre-Existing IP**"), shall belong exclusively to such Party, and this MOU shall not be construed as giving either Party any rights over such Pre-Existing IP of the other Party. All intellectual property created jointly by the Parties, or created for the purposes of this MOU or to achieve the purpose and objective of the MOU, shall belong jointly to all the Parties, unless specifically agreed otherwise.
- 6.2. Each Party is given limited rights to use the trademark/trade name/logo of the other Party for the purpose of any press releases or promotions related to the objectives of this MOU, with prior permission of the Parties, to form part of any presentations made by either Party under this MOU.

7. TENURE AND TERMINATION

- 7.1. This MoU will take effect from the date it is signed by representatives of the two institutions. It will remain valid for a period of two years and may be continued thereafter after suitable review and agreement by both the institutes.
- 7.2. Either institution may terminate the MoU by giving a written notice to the other, three months in advance. Once terminated, neither **Department of Industrial Biotechnology, GCT Coimbatore** nor TICEL Bio Park will be responsible for any losses, financial or otherwise, which the other institution may suffer. However, **GCT Coimbatore** and TICEL Bio Park will ensure that all activities in progress are allowed to complete successfully.

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8. MODIFICATIONS:

This MOU may be amended only by an instrument in writing signed by duly authorised representatives of each of the Parties.

9. RELATIONSHIP BETWEEN THE PARTIES

9.1 It is expressly agreed that First Party and Second Party are acting under this MoU as independent contractors, and the relationship established under this MoU shall not be construed as a partnership. Neither Party is authorized to use the other Party's name in any way, to make any representations or create any obligation or liability, expressed or implied, on behalf of the other Party, without the prior written consent of the other Party. Neither Party shall have, nor represent itself as having, any authority under the terms of this MoU to make agreements of any kind in the name of or binding upon the other Party, to pledge the other Party's credit, or to extend credit on behalf of the other Party.

9.2 Any divergence or difference derived from the interpretation or application of the MoU shall be resolved between the Parties by mutual negotiations in the first instance failing which the same shall be resolved by arbitration between the parties as per the Arbitration Act, 1996. The place of the arbitration shall be at Chennai. This undertaking is to be construed in accordance with Indian Law with exclusive jurisdiction in the Courts of **Chennai**.


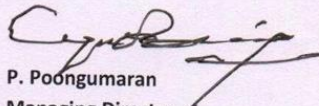
10 SEVERABILITY:

If any provision, paragraph, sentence, or word of this MOU is declared void by a Court of competent jurisdiction; then the provision, paragraph, sentence, or word will be severed from this MOU, and the remainder of the MoU will remain in effect.

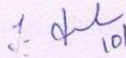
11 COUNTERPARTS:

This MoU may be executed in any number of counterparts and by the Parties to it on separate counterparts, each of which shall be an original but all of which together shall constitute one and the same instrument. The delivery of signed counterparts by facsimile transmission or electronic mail in 'portable document format' ('.pdf') shall be as effective as signing and delivering the counterpart in person

AGREED:

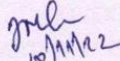
For GCT Coimbatore	For TICEL BIO PARK
 Dr. Thamarai Principal Government College of Technology Coimbatore -641 013. Government College of Technology Thadagam Road Coimbatore – 641 013 Email: principal@gct.ac.in Web: www.gct.ac.in	 P. Poongumaran Managing Director TICEL Bio Park Limited No.5, CSIR Road, Taramani, Chennai – 600 113 E-mail: md@ticelbiopark.com Website: www.ticelbiopark.com

Witness 1:



10/11/22

Dr. J. JEYANTH, Prof + Head
Dept. of Biotechnology, ^{GCT} CBE-13

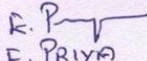
Witness 2:


10/11/22
Dr. J. MERCY MARY PAULINE
Asst. Professor, 185/GCT
CBE-13

Witness 1:


Dr. S. PRIYA
AUP, TIDCO

Witness 2:


Dr. E. PRIYA
SA, TIDCO



TICEL BIO PARK LTD.

(TIDCO Centre for Life Sciences)

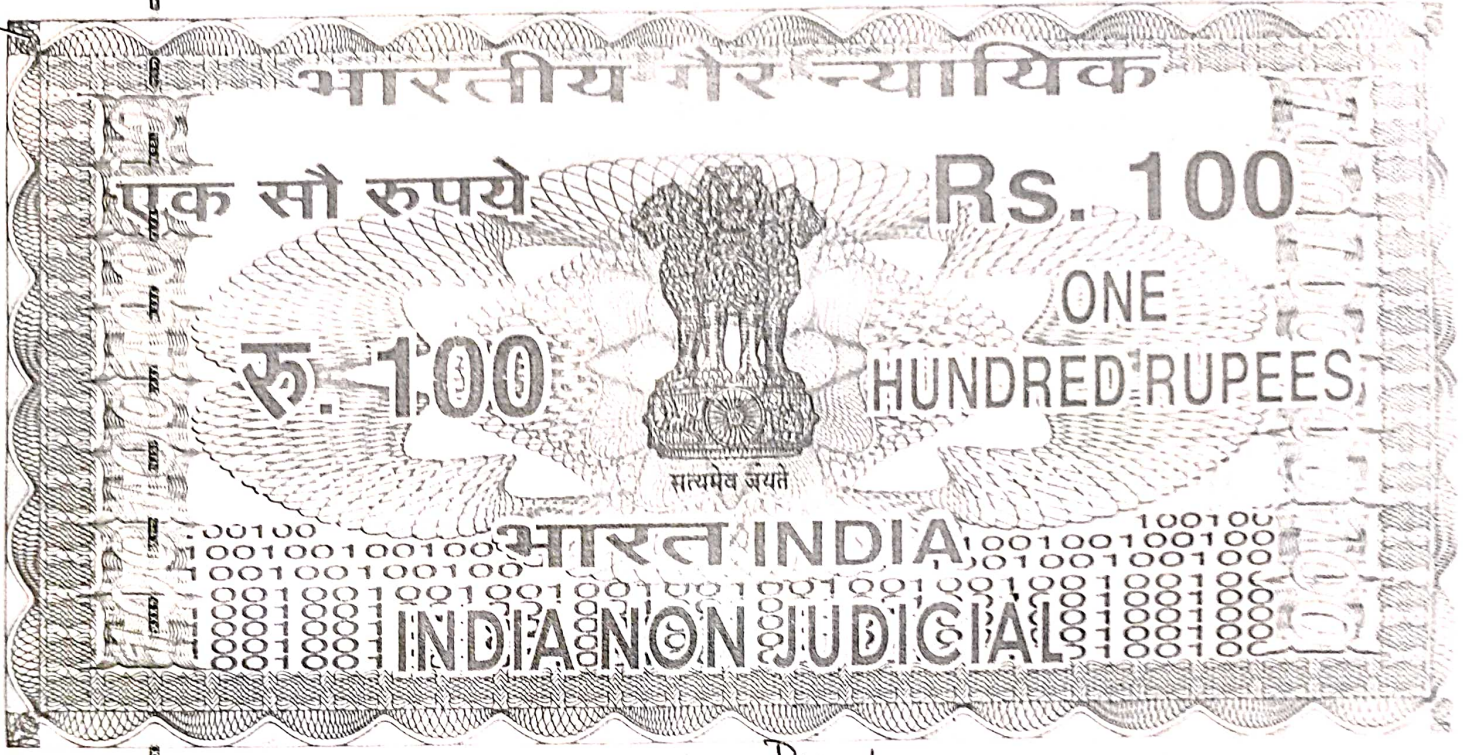
CERTIFICATE OF INTERNSHIP

Mr. Akilesh P

IV year, B.Tech - Industrial Biotechnology, Government College of Technology, Coimbatore - 641013, has completed Four Weeks internship program from 10/07/2023 to 07/08/2023 at Biotech Core Instrumentation Facility, TICEL Biopark Ltd., Taramani, Chennai 600113. During the internship program, he was given exposure and training in Bioprocess and analytical equipment.

V. SENTHILKUMAR
Manager, Scientific / Bioprocess

P. POONGUMARAN
Managing Director



தமிழ்நாடு தமில்நாடு TAMILNADU

₹100/-

CR 158908

M. Vijayalakshmi
M. VIJAYALAKSHMI

STAMP VENDOR

L.No 928781/2021-22/CBE.

31, Jaya Nagar, Neslikenampalayam Post,

Coimbatore - 641 933

9.6.2022

Municipal GCT
Cbe.

Memorandum of Understanding (MoU)

Between

**Turbo Engineers (CBE), Coimbatore and Government College of Technology,
Coimbatore**

This Memorandum of Understanding (MoU) is entered into July, 18 th day of 2022 by and between **Turbo Engineers (CBE) Coimbatore-641659**, incorporated in SF. No. 266/1, The Ponnampalayam, Annur Main Road, Ponnandampalayam Village, Coimbatore-641659, Tamilnadu. **Turbo Engineers (CBE)** and **Government College of Technology**, Thadagam Road, Coimbatore - 641013, was established in 1945 hereinafter referred to as "GCT".

Recitals

Turbo Engineers (CBE) is an ISO 9001:2015 certified & Crisil rated Engineering Company based at Coimbatore, India. Incepted in 1992, dedicated to quality & service and is well equipped to face the challenges of the Modern Industries (Globally) in the arena of Technology & Engineering. They offer latest Technology to

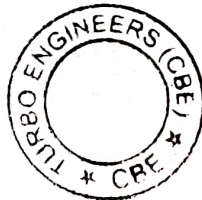
such performance relates to prevention, restriction, delay or interference and provided the party so affected used its best efforts to remove such cause of non-performances, and when removed the party shall continue performance with the utmost dispatch. Each of the parties agrees to give written notice to the other party upon becoming aware of an Event of Force Majeure, and mentioning details of the circumstances giving rise to the Event of Force Majeure.

27. **Indemnity:** Each of the parties shall defend, indemnify and hold the other party harmless from and against any claim, liability, loss, costs or expenses (including reasonable Attorney's fees) arising out of or resulting from the material breach of the provisions herein.

28. The headings and sub-headings are inserted for the convenience only and shall not affect the construction of this Agreement.


IN WITNESS WHERE OF THE PARTIES HAVE SET THEIR HANDS HERE TO ON THE DAY AND YEAR FIRST HERE IN ABOVE WRITTEN UNDER THEIR RESPECTIVE SEAL OF OFFICE.

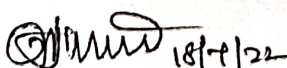

18/7/22





Mrs. Shanthi Sudhakar,
Turbo Engineers (CBE)
SF. No. 266/1, Thennampalayam-
Annur Main Road,
Ponnandampalayam Village,
Coimbatore-641659, Tamilnadu, India
Ph: 9442522304
shanthi@turboengineers.com

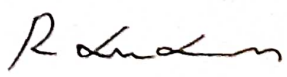
Witness


18/7/2022
1. Dr. K. Ramesh
Professor of Mechanical Engineering
Government College of Technology,
Coimbatore - 641 013.


18/7/22
2. Prof. S. Parimala Murugaveni
Asso. PME of Mechanical Engineering
Government College of Technology,
Coimbatore - 641 013.


18/07/2022
Dr. P. Thamarai
Principal,
Government College of Technology,
Thadagam Road,
Coimbatore - 641 013.
Ph: +91 - 0422 - 2432221
Principal@gct.ac.in
Principal
Government College of Technology
Coimbatore - 641 013.


18/07/2022
3. D.S. SUDHAKAR
PME of Engineering (H)
Coimbatore.

4. 
(R-SURENDRAN)
APME/ACT

**PRODUCT DESIGN AND DEVELOPMENT CLUB
OF GCT**

K. M. W.
31/8/23

PADC

IDEATE • CREATE • DEVELOP

**REPORT ON PROJECT IDEA EXPO
&
BOARD INSTALLATION CERMONY - 2023**

Product Design and Development Club

Government College of Technology

Coimbatore - 641013

11/08/2023

CP
by
11/8/23

Submitted to the Principal:

Sub: Requesting to Conduct a Event " Project Idea Expo with Board Installation Ceremony".

The Product Design and Development Club has to conduct a event "Project Idea Expo with Board Installation Ceremony" in Alumni Seminar hall at 11 am on 17.08.2023 for the benefits of the students. Kindly Grant us Permission to Project Idea Expo for further process. .

[Handwritten Signature]
Co-ordinator

Product Design and Development Club

[Handwritten Signature]

To
Barar
11/8/23

Product Design and Development Club

Government College of Technology

Coimbatore - 641013

11/08/2023

Submitted to the Principal

Sub: Sanction of fund to conduct Project Ideas Expo along with Board installation ceremony PDDC - reg.

We are going to conduct a event on project ideas expo along with Board installation ceremony of Product Design and Development Club in the Alumni hall on 17.08.2023. In order to conduct the event an amount of Rs. 5000/- (Rupees Five Thousand only) is required. It is requested that the fund may be sanctioned.

R. S. M. S. M.
Coordinator- PDDC
R. S. M. S. M.



GOVERNMENT COLLEGE OF TECHNOLOGY
COIMBATORE -641013



PRODUCT DESIGN AND DEVELOPMENT CLUB



CELERATE

Igniting next-gen projects
A project idea expo

Open to all
Departments & years

₹10K

Prize Pool

Scan to register



No
Registration
Fees

Deadline
16.8.2023
10 AM

President

73588 68252



Pddc_got

Secretary

63741 67998

REPORT ON PROJECT IDEA EXPO & BOARD INSTALLATION CEREMONY – 2023

OBJECTIVES:

To conduct a Board Installation ceremony for the year 2023-24, and to conduct a project Idea Expo as an Intra college Project event in GCT.

ATTENDEES:

The Principal of GCT Coimbatore, Dr. K. Manonmani. The Head of Mechanical Department and the Mentor of PDDC Dr. K. Ramesh. The staff co-ordinators of PDDC Prof.S. Parimala Murugaveni, and Prof.R. Surendran. The Chief Guests **Mr. Sudhakar Sundaravel** and **Mrs. Shanthi Sudhakar**, the Members of PDDC, the Participants of the Project Idea Expo, and the students.

TOTAL NO. OF ATTENDEES: 147

DATE HELD: 17-08-2023

LOCATION: Alumni Hall, GCT.

DESCRIPTION:

The product design and Development Club was inaugurated in Government college of technology on 20.05.2022. The main aim of the club is to explore the interest of students in the Product Design and Development field in an efficacious way and to broaden the knowledge on various interdisciplinary projects and obtain patents for that project. The Board Installation Ceremony was done in order to inaugurate the fresh board of the PDDC Club of GCT. This was done in the Presence of the Principal **Dr. K. Manonmani**, the Mentor of PDDC and Head of Mechanical Department **Dr. K. Ramesh**, the staff co-ordinators of PDDC **Prof.S.Parimala Murugaveni**, and **Prof R. Surendran**, and the Chief Guests **Mr. Sudhakar Sundaravel** and **Mrs. Shanthi Sudhakar**.

The Installation was proceeded by the mentor Dr. K. Ramesh, by whom the President, Secretary, and the Treasurer took their Oath and the Other Board members were introduced.

Following this Installation, the Project Idea Expo was conducted and Students from various Departments presented their Project Ideas. In the first round prof. R.Surendran short listed the project ideas with the help of Project heads and 8 ideas were selected for the final round. In final round the Chief Guests and the Staffs evaluated them and 3 winners were chosen and honoured by the Chief Guests with cash prize.

Participants List

Total members presented -32

NO	NAME	PROJECT NAME	DEPARTMENT	YEAR
1	Thejasi	Solar water purifier	Prod	3
2	Visveshwaran	Pokochild	Civil	4
3	Baranidharan	Feelingo	Cse	4
4	Magesh kumar E,Pavithra R,Abinaya B	Bus sensor	Ece	2
5	Nayan shaji	Inclinable bed for 3d printer	Mech	4
6	Jerome christo,Yashwant Vijay,Surya	Solar treking bag	Mech,EEE,ECE	3
7	Prasanth	Versatile probe	Eee	3
8	Thilainathan	Liquid 3	lbt	2
9	Suvathy A, Divya J, Shankar,Komathilakshmi D,Hema Y	Safty app	Cse	3
10	Jebin kamlesh I,Arun prasath S , Laskmi narayanan M	Solar electroliser	Mech	3
11	Menaka A, Deepikaa V,Nikitha P,Kayalvizhi T	Vpa(viritual personal assistant)	Cse	3
12	Vinothini S,Ruthra L,Sivasankari M ,Rajeshwari	Student activity management system	Cse	3
13	Shyam	Women safty watch	Ece	3
14	Abdul subahan	Self sustainable ac generator	Mech	2
15	Megavannan M D,Arivumathi P K,Venkatesaperumal R	Deep learning based rar disease identification	Cse	3
16	Padmapriya V,Jerin richie ,Yogeswari	Ecommerce website visually impared customers	Cse	3
17	Sai anirudh M , Vishal R,Menaka A,Vinothini S	Newgenlearning	Eee	3
18	Vignesh	Stairs crossing vechile	Ece	3
19	Dhanvarashan R M	Helmet key	Mech	3
20	Joseph raj B,Jeevarathinam K S,Srshivanth R F	Trash seperation in corperation dustbins	Ece	3
21	Divaagar	Medical drone	Cse	3
22	Sakthivel K,sivaranjini S	Acessing govt schems	Cse	3
23	Priyanka S ,Anumitha R D	Empowering visually impact through ai	Cse	3
24	Menaka A,Nikitha P, Keerthana R	Travinity	Cse	3
25	Roshan	Engine nh3 h	Mech	2
26	Mathivanan V ,Mohammed shaheed M	Fireblaster prevention detiction system in firewoek industries	Eee	2
27	Vishnukanth	Ultrasonic glasses for blind people	Ece	2
28	Sivashankiri M,Preethi G,Vinothini S,Rajeshwari P	Youtube transcript summeriser	Cse	3
29	Karunasri A,Poornasri P,Keerthana R,Pradeepraj V S	Healthcare alerting system	Cse	3
30	Chandrashekar S M	Nfc multicard	Ece	4
31	Disa v,Praneesha A,Ananthi C	Wireless water level sensor	Eee	3
32	Vineeth	Bio gas as eternal energy source	Ece	3

Winners of Project idea expo 2023

Winners are honoured with cash prizes. This cash prize 10,000 sponsored by the Chief Guests **Mr. Sudhakar Sundaravel and Mrs. Shanthi Sudhakar**

1st Prize - 5000

Dhanvarashan R M – Mech 3rd year

2nd Prize - 3000

Thilainathan K – IBT 2nd year

Vinothini A – IBT 2nd year

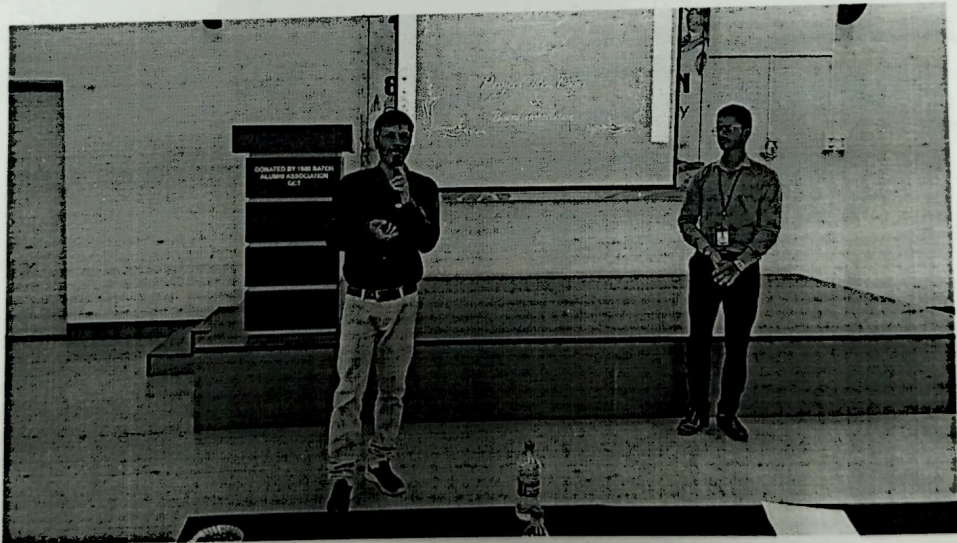
Sherin auxciliya A – IBT 2nd year

3rd Prize - 2000

Chandrashekar S M – ECE 4th year



LIGHT LAMPING

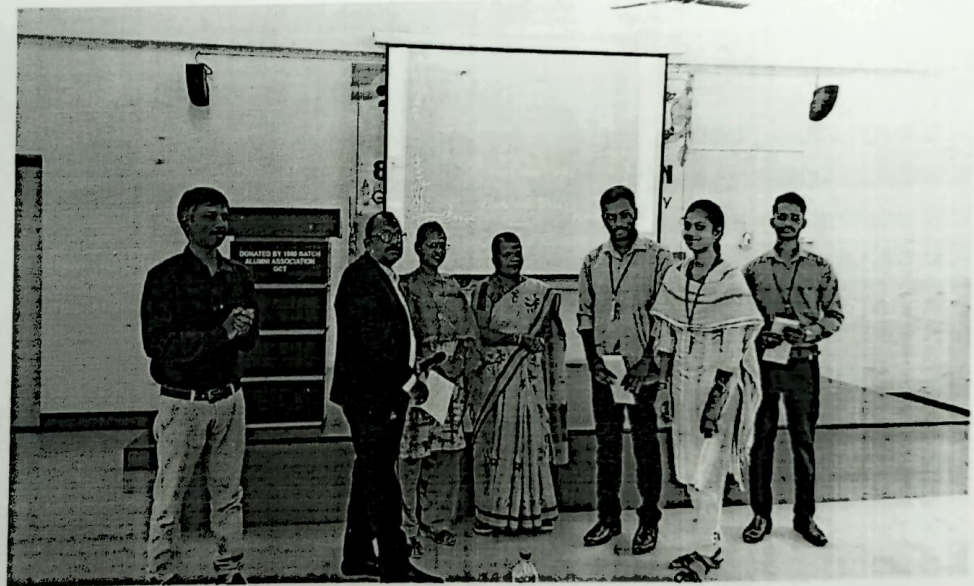


SPEECH ABOUT CLUB

PRIZE DISTRIBUTION



#1



#2



#3



ICTACADEMY®

An Initiative of Government of India, State Government and Industry

An ISO 9001:2015 Certified Organisation

Certificate of Membership

This is to certify that

GOVERNMENT COLLEGE OF TECHNOLOGY, COIMBATORE

is an Institutional Member of ICT Academy

Membership No: 04266

Membership Period: 09 Nov 2022 to 31 Mar 2023

Chennai, Tamil Nadu



Hari Balachandran

Hari Balachandran
Chief Executive Officer

conduct Power Seminar for CSE Students through ICT

Messages

Sumathi L. <lsumathi@gct.ac.in>
Anand <anand@ictacademy.in>
S RATHI <rathi@gct.ac.in>

Thu, Feb 22, 2024 at 3:01 PM

Hi Anand,

Warm Greetings! Following our recent discussion, I am reaching out to initiate plans for a power seminar at our college in the Computer Science and Engineering department. The seminar can be either on "Social networking -advantages and Benefits" or on "Developing interpersonal skills" scheduled on February 28th, 2024 for second and third year CSE Students. I am writing to seek your confirmation regarding the feasibility of organizing the event during the mentioned period. Your input and approval would be invaluable in ensuring the success of this seminar.

Looking forward to your response.

with regards,
L. Sumathi,
Assistant Professor,
Department of CSE,
Government college of technology,
Coimbatore.
Ph.9994018432

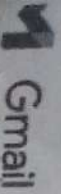
Sumathi L. <lsumathi@gct.ac.in>
Anand <anand@ictacademy.in>

Wed, Feb 28, 2024 at 2:52 PM

Dear Sir,

In Connection to above mail, is it possible to schedule seminar either on "Social networking -advantages and Benefits" or on "Developing interpersonal skills" on March 20th 2024

[Quoted text hidden]



Sumathi L. <sumathil@gct.ac.in>

wd: Access to ICT Academy Member Institutions Dashboard
message

Wed, Jul 12, 2023 at 9:50 AM

RATHI <rathi@gct.ac.in>
<Sumathi.L.<sumathi@gct.ac.in>

Sent from my iPhone

Begin forwarded message:

From: support2@ictacademy.in
Date: 12 July 2023 at 5:04:48 PM IST
To: rathi@gct.ac.in, principal@gct.ac.in
Cc: sabarnshi@ictacademy.in, narendrala@ictacademy.in, kokila.vardhini@ictacademy.in
Subject: Access to ICT Academy Member Institutions Dashboard

Dear Member Institution, ,

Greetings from ICT Academy!

Welcome again **Government College of Technology, Coimbatore**

The member institutions dashboard which would facilitate the member institutions to get a better understand on their engagement with the academy. The dashboard will have access to the following :

1. Engagement reports of the institution with the academy
2. Membership Information
3. FDP Nominations
4. Institution contact details
5. Online membership renewal gateway.

The login shall be accessed by the principal or coordinator of the institution. please find below the link and login credentials of the dashboard

Link: <http://member.ictacademy.in/>

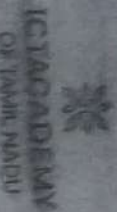
Membership ID : **04266**

Password : **XXXXXXXXXX**

Thank you for your continuous support in all the initiatives of ICT Academy in bridging the skill gap between the industry and the Academia. Hope this dashboard will play a key role in helping your institution engage better with ICT Academy.

ICT ACADEMY
<http://ictacademy.in/>

ICT ACADEMY OF TAMIL NADU



APPLICATION FOR INSTITUTIONAL MEMBERSHIP

Name of the institution

GOVERNMENT COLLEGE OF TECHNOLOGY

Address of the institution

TJADARAIYAR ROAD, TAMILNADU

Phone No

0422-2523201 Fax No

Email

Principal@ict.ac.in Website: www.ict.ac.in

Name

Dr. K. MANONMANI

Address

Principal@ict.ac.in

Name

Dr. S. RATHI

Department

CHEMISTRY, SOLUBLE AND POLYMER

Designation

PROFESSOR (JRS)

Address

Principal@ict.ac.in

Email

rathi@ict.ac.in

Proposed Director Name

Dr. K. KAMESH

Address

Principal@ict.ac.in

Designation

Principal@ict.ac.in

Name

Principal@ict.ac.in

Address

Principal@ict.ac.in

Email

Principal@ict.ac.in

To
Dr. S. Rathi
12/11/12

INSTITUTIONAL MEMBERSHIP SHEET



Departments	Name	Head of the Department	Mobile	Email	No. of Faculty Members
15 B.Tech I&T	D. J. TEJASWARI		9849864570	dyj@icta.ac.in	16
16 M.E. ENVIRONMENTAL ENGIN.				91191.in	3
17 M.E. MANUFACTURING ENGIN.	Dr. T. SEKAR		9692500898	dtsek@icta.ac.in	2
18 M.E. ENVIRONMENTAL ENGIN.	Dr. N. RAJAN ALANK		9994496070	narajan@icta.ac.in	2
19 M.E. VLSI DESIGN	Dr. M. SHANTHA		9442299619	shantha@icta.ac.in	2
20 M.E. APPLIED ELECTRONICS					
21 MATHEMATICS	Prof. K. PATENDRAN		9493799897	patendran@icta.ac.in	7
22 PHYSICS	Prof. B. SUNDARARAJAN		9444203200	rsundara@icta.ac.in	4
23 CHEMISTRY	Dr. C. SUNDARARAJAN		9994493233	csundara@icta.ac.in	3
24 ENGLISH	Dr. J. ANJANABALI		9078521119	anjana@icta.ac.in	3



Principal

Government College of Technology
Coimbatore - 641 013.

For Office Use Only
Membership Number:

Date: / /



09th June 2023

Ref: ICTACT / 2023 - 2620

To
The Commissioner
Directorate of Technical Education
Government of Tamil Nadu

Respected Sir,

Sub: Technical Education – Free ICT Academy of Tamil Nadu Membership Services to the Government Arts and Science Colleges and Government Engineering Colleges for the year 2023 - 2025– Reg.

Ref: No. Letter No.2397/J1/2023-1, Dated: 05.06.2023

Greetings from ICT Academy of Tamil Nadu!

This is with reference to the above subject, we hereby providing free ICT Academy of Tamil Nadu Membership services to Government Engineering Colleges for the year of 2023 – 2025 across Tamil Nadu.

To being with, we hereby request to send the official instructors (as Enclosed) to the principal of Government institutions across Tamil Nadu for Training the Teachers of Higher Education Institutions on FREE MEMBERSHIP. Further, we will follow-up with the respective college principal to enroll their teachers for the training program.

We hereby Enclosed the Following

- 1) Enrolment Form

And the filled-up forms with the Co-Ordinator and Faculty details with Principal seal and Signature and send it to respective e mail id's sureshkumar@ictacademy.in and if any query Contact Mob No – 96000 08695.

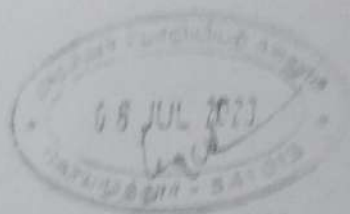
Kindly do the needful and advice to take forward.

Thank You

Warm Regards,
For ICT Academy of Tamil Nadu

Hari Balachandran
Chief Executive Officer





004/53

81
21/7/23
6.7.2023

DEPARTMENT OF TECHNICAL EDUCATION

43
6/7/23

From

Director of Technical Education,

Chennai - 600 025

To

The Principal,

Letter No.21398 / H5 / 2023, Dated : 27-06-2023

Sir,

Sub: Technical Education- Free ICT Academy of Tamilnadu Membership services to the Government Arts and Science Colleges and Engineering Colleges for the Year 2023-2025 - Regarding

- Ref: 1. Government letter No:2397/J1/2023-1, dated 05.06.2023
 2. Letter from Chief Executive officer, ICT Academy of Tamilnadu, dated 09.06.2023

With reference to the letter 2nd cited received from Chief Executive officer, ICT Academy of Tamilnadu is stated that they are providing free membership services and Training to teachers belongs to Government Engineering colleges, in tamilnadu for the year 2023-2025 and the copy of ICT Academy of Tamilnadu letter is closed herewith for necessary action.

Hence the Principal of Government engineering colleges is request to take further action in this regard.

Encl: As above

[Signature]
23/6/23
for Director of Technical Education

[Signature]
23/6/2023

முதல்வர் அலுவலகம், அரசினர் பொறியியற் கல்லூரி, கோவை-13.

மேற்குறிப்பாணை எண்.3068/சி1/2023-1, நாள்: 07.07.2023

பார்வை : சென்னை, தொழில் நுட்பக் கல்வி ஆணையர் அவர்களின்
கடித எண்.21398/எச்5/2023, நாள்: 27.06.2023

பார்வையில் காணும் கடித நகல் தகவலுக்காகவும், தக்க நடவடிக்கைக்காகவும்
அனுப்பப்படுகிறது.

இணைப்பு : கடித நகல்

ஒம்./-ரா.ர.ஸ்ரீதேவி
முதல்வருக்காக

பெறுநர்

அனைத்து துறைத்தலைவர்கள் மற்றும்
பொறுப்பு அலுவலர்கள்
(ஆசிரியர்களிடையே சுற்றுக்கு விடும்பொருட்டு)

//ஆணையின்படி அனுப்பப்படுகிறது//

M. 7.7.23

கண்காணிப்பாளர்

20/7/23

Title: C++ workshop

Participants: 59 students from Computer Science and Engineering

Date: 27 Oct, 31 Oct, 1 Nov, 2 Nov of 2022

Overview:

The C++ Workshop covers many topics, starting from the basics and progressing towards more advanced concepts. Participants will leave the workshop with a solid understanding of C++ programming fundamentals and practical experience through hands-on coding sessions.

Learnings:

Day 1: Introduction to C++ (27th October)

Session 1: Introduction to C++

- Overview of C++ language and its importance
- The basic structure of a C++ program

Session 2: Program Structure

- Understanding the structure of a C++ program
- Syntax rules and **conventions**

Session 3: Basic Data Types

- Overview of fundamental data types in C++
- Variables and constants

Day 2: Intermediate C++ (31st October, 1st November)

Session 4: Pointers

- Understanding pointers and their importance
- Pointer arithmetic

Session 5: Functions

- Declaring and defining functions in C++
- Function parameters and return values

Session 6: Templates

- Introduction to templates for generic programming
- Creating and using function templates and class templates

Session 7: Exceptions

- Handling errors and exceptional situations in C++
- try-catch blocks and exception-handling mechanisms

Day 3: Advanced C++ (2nd November)

Session 8: Object-Oriented Programming (OOP) in C++

- Introduction to OOP concepts
- Creating classes and objects
- Encapsulation, inheritance, and polymorphism

Session 9: Lambdas

- Introduction to lambda expressions
- Syntax and usage in C++

Hands-on Session 1: Intermediate Concepts

Practical exercises and coding challenges to reinforce learning from the previous sessions

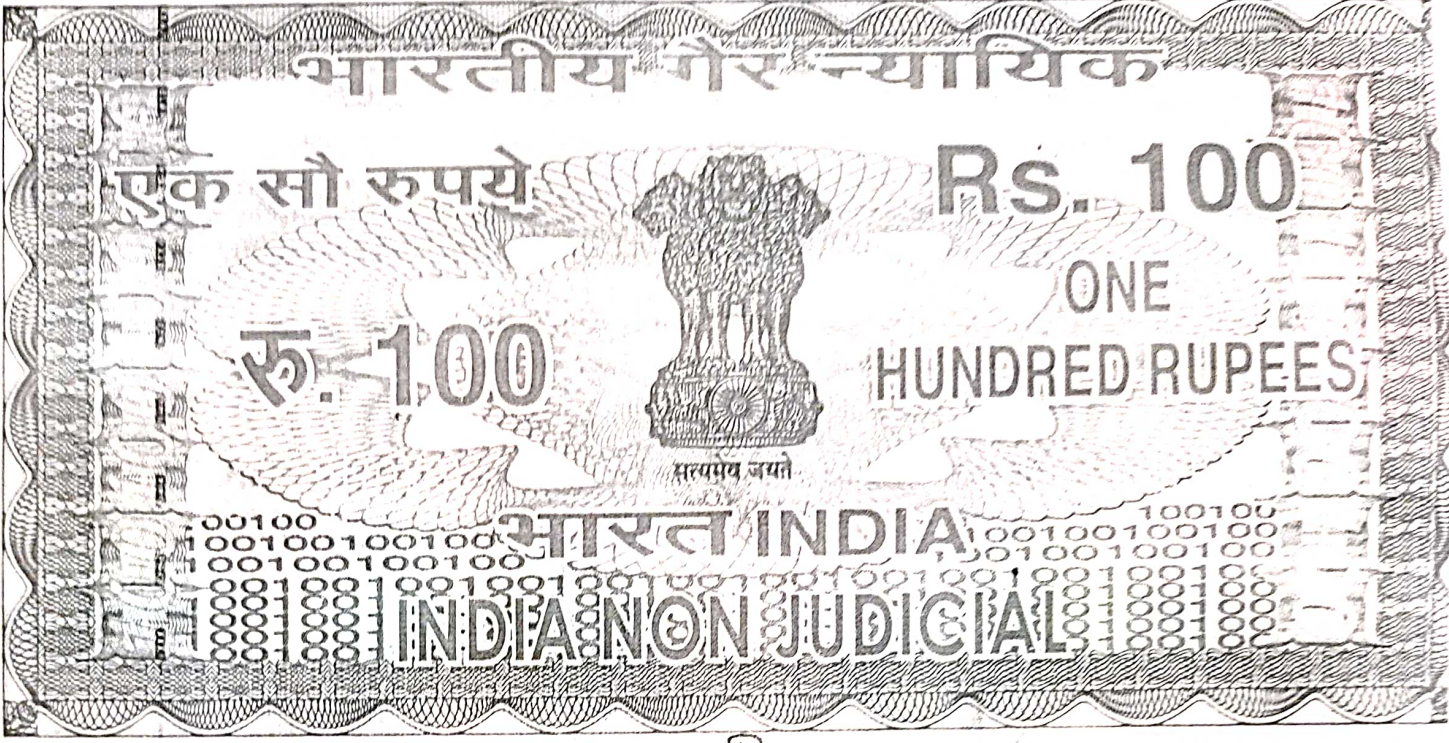
Hands-on Session 2: Advanced Concepts

More in-depth coding exercises focusing on advanced C++ concepts and techniques

Participation list:

2017114	Mohammed Jaffer Sadiq Meeran A	71772117108	Cathlyn Jeba Goldy T
71772117144	Sudharsan M	71772117123	Madhumitha B J
2017127	Shanmuga Venkatesh S	71772117120	Komathilakshmi D
2017311	Krishna Kumar M	71772117148	S. Vinothini
2017314	Prabhu	71772117117	Janani.G
2017303	ANAND R	71772117110	Divya J Shankar
71772117147	Vaitheeshwaran S	2017L05	Murugan.M
71772117111	Giridharan S	71772117133	PRIYANKA S
71772117125	MARIESWARAN P	2017313	Noufal Rahman
2017104	AKASH GUPTA	71772117113	Hariharan S
2017302	Abinaya R	2017308	Hyden A
71772117122	Leelavathi S	2017124	SARAVANAN R
71772117146	Thoufeeq	2017L02	M.chandra sekar
71772117106	Barathkumar K	71772117104	Arivumathi P K
71772117114	HEMA Y	71772117151	Yazhini K

2017308	Hyden A	2017305	ARAVIND RAJ N
61772121031	PRADEEPRAJ V S	71772117121	Raga priyanka kurapati
2017115	Nagaprasath B	71772117118	Jerin Richie D.
TRANSFER	KOKULAVENKAT K	71772117103	Anumitha R D
830121104013 - t	Kayalvizhi T	71772117126	Megavannan M D
71772117129	Padmapriya V	71772117119	Karthikeyan
71772117132	PREETHI G	71772117115	Inba Thamizhan V
71772117145	Suvathy A	71772117152	Abhiraj Singh
71772117142	Sowndharya M	71772117101	Abhilash. G
71772117134	P.RAJESWARI	71772117143	Srikanth
Transfer	R B DIVAAGAR	71772117116	Ishan Sharma
2017312	Niranjan K	2017112	Madhumitha. N
71772117131	Poomasri P	71772117128	Nitish bhardwaj
71772117135	Ruthra.L	71772117105	Balaji
71772117102	Abinaya V	71772117143	Srikanth B
71772117L05	Yogeshwari L	2017311	Krishna Kumar M
71772117141	M Sivasankari	2017111	Keerthana V
71772117149	Vishal N	2017132	Sudharsan K
71772117139	Sheela Jemi L	2017139	Venkat Raman S
2017107	Bartholome Priyadarshan J J	2017121	Sabari Karthick S
2017133	SUJITHKUMAR K	2017130	Siva Saravanan
2017L05	Murugan M	2017108	CHRISTOPHER T
2017120	Ruban N B	71772117109	CHANDRU A
2017318	Sruthi R	71772117136	SAKTHIVEL K



தமிழ்நாடு தமில்நாடு TAMILNADU

RS.100/-

CR 118995

8-04-2022 Principal GCT
CBE.

M. Vijayabharathi
M. VIJAYALAKSHMI
STATIONER
L.No. 928
31, Jaya Road, Coimbatore Post
Coimbatore - 641 003.

Memorandum of Understanding (MoU)

Between

GODIGITAL PTY LTD, Western Australia and Government College of Technology, Coimbatore

This Memorandum of Understanding (MoU) is entered into April, 19 th day of 2022 by and between **GODIGITAL PTY LTD, Perth, Western Australia** having its headquarters 11, Arion Ave, Harrisdale, Western Australia – 6112, Australia. (hereinafter referred to as "GODIGITAL") and **Government College of Technology**, Thadagam Road. Coimbatore - 641013, was established in 1945 hereinafter referred to as "GCT".

Recitals

- GODIGITAL, is a digital expert organization, solving complex challenges which focus on people and the future. We create brands, develop products, bring spaces to life and deliver new experiences while opening opportunities to drive growth for our clients. We offer design and development solutions for Web applications, Build E-Commerce websites, Develop custom software and mobile app solutions to suit customer needs, Provide affordable cloud based Digital Signage, Deliver creative graphics design & branding solutions with stunning graphics and user experience to our clients.


the party affected shall be excused from its performance and provided the party so affected used its best efforts to remove such cause of non-performances, and when removed the party shall continue performance with the utmost dispatch. Each of the parties agrees to give written notice to the other party upon becoming aware of an Event of Force Majeure, and mentioning details of the circumstances giving rise to the Event of Force Majeure.

24. **Indemnity:** Each of the parties shall defend, indemnify and hold the other party harmless from and against any claim, liability, loss, costs or expenses (including reasonable Attorney's fees) arising out of or resulting from the material breach of the provisions herein.
25. The headings and sub-headings are inserted for the convenience only and shall not affect the construction of this Agreement.

IN WITNESS WHERE OF THE PARTIES HAVE SET THEIR HANDS HERE TO ON THE DAY AND YEAR FIRST HERE IN ABOVE WRITTEN UNDER THEIR RESPECTIVE SEAL OF OFFICE.


JEEVAN JEGANATHAN,
Chief Executive Officer & Founder,
GODIGITAL PTY LTD,
ACN: 656 256 138
ABN: 90 656 256 138
11 Arion Ave Harrisdale,
Western Australia, Australia - 6112

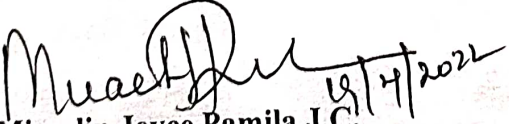




Dr. P. Thamarai
Principal,
Government College of Technology,
Coimbatore - 641 013.

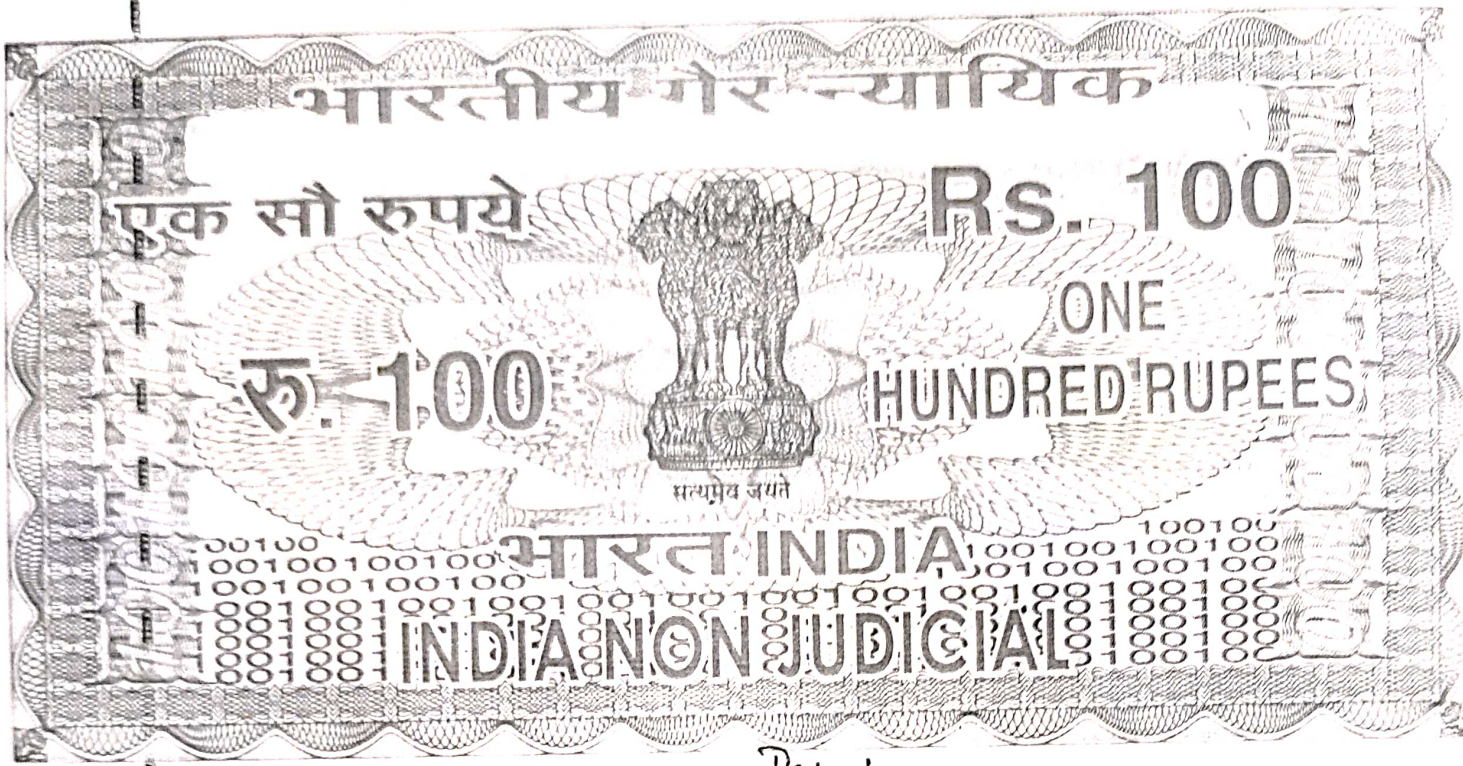

MURALI SELVARAJ,
Executive Director & Co-Founder,
GODIGITAL PTY LTD,
ACN: 656 256 138
ABN: 90 656 256 138
11 Arion Ave Harrisdale,
Western Australia, Australia - 6112



Witnesses (From GCT)


Dr. Miraclin Joyce Pamila J.C.
Professor (CAS),
Head of Computer Science and Engineering Department,
Government College of Technology,
Coimbatore - 641 013.


Prof. S. Parimala Murugaveni
Associate Professor of Mechanical Engineering
Government College of Technology,
Coimbatore - 641 013.



தமிழ்நாடு தமில்நாடு TAMILNADU

9.6.2022

Principal GCT
Cbe.

Rs.100/-

M. Vijayalakshmi
M. VIJAYALAKSHMI

CR 158909

STAMP VENDOR

L No. 923/B/2021-22/CBE.

31, Jaya Nagar, Heelikonampalayam Post,
Coimbatore - 641 033.

Memorandum of Understanding (MoU)

Between

Fluidics Engineers Private Limited, Coimbatore. and Government College of Technology, Coimbatore

August

This Memorandum of Understanding (MoU) is entered into 4 th day of 2022 by and between **Fluidics Engineers Private Limited, Coimbatore**, incorporated in Door No. 12/1, Vetti Vinayagar Nagar, Saravanampatti, Coimbatore-641035, Tamilnadu. **Fluidics Engineers Private Limited**, and **Department of Mechanical Engineering, Government College of Technology**, Thadagam Road. Coimbatore - 641013, was established in 1945 hereinafter referred to as "GCT".

Recitals


- Fluidics Engineers Private Limited which design, manufacture, erection and commissioning of special purpose equipments involving hydraulic powering. Also involved in Trouble shooting hydraulic components of imported equipment.
- GCT is a leading Institution of Technical Education offering various Under Graduate, Post Graduate and Doctoral programs in Engineering and Technology.

Force Majeure, and mentioning details of the circumstances giving rise to the Event of Force Majeure.

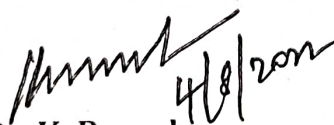
27. **Indemnity:** Each of the parties shall defend, indemnify and hold the other party harmless from and against any claim, liability, loss, costs or expenses (including reasonable Attorney's fees) arising out of or resulting from the material breach of the provisions herein.
28. The headings and sub-headings are inserted for the convenience only and shall not affect the construction of this Agreement.

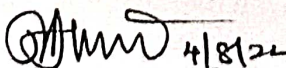
IN WITNESS WHERE OF THE PARTIES HAVE SET THEIR HANDS HERE TO ON THE DAY AND YEAR FIRST HERE IN ABOVE WRITTEN UNDER THEIR RESPECTIVE SEAL OF OFFICE.


For Fluidics Engineers Private Limited


Kaustubha Vilas Parkhi
Director
August 4, 2022
Mr. Kaustubha Vilas Parkhi,
Director,
Fluidics Engineers Private Limited
Door No. 12/1, Vetri Vinayagar Nagar,
Sivananthapuram,
Saravanampatti, Coimbatore-641035

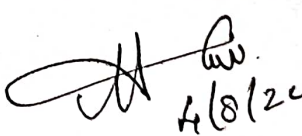
Witness:


4/8/2022
1. Dr. K. Ramesh
Professor of Mechanical Engineering
Government College of Technology,
Coimbatore - 641 013.


4/8/22
2. Prof. S. Parimala Murugaveni
Asso. PME of Mechanical Engineering
Government College of Technology,
Coimbatore - 641 013.


04/08/2022
Dr. P. Thamarai
Principal,
Government College of Technology,
Coimbatore - 641 013.

Dr. P. THAMARAI, Ph.D.
PRINCIPAL
Govt. College of Technology
Coimbatore - 641 013.


4/8/22
3. Mr. Hari Kumar.K.V,
Manager,
Fluidics Engineers Pvt. Ltd,
468, Ponnaiyan Street,
Cross cut road, Gandhipuram,
Coimbatore - 641035





தமிழ்நாடு தமில்நாடு TAMILNADU

9.11.2022

The principal


GCT, Coimbatore. 641013

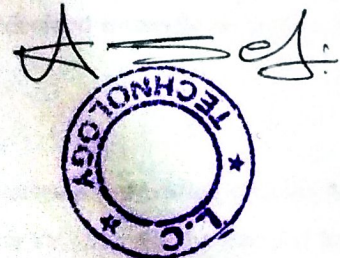
BD 348184

ராஜமோகன் (எ) மு.ந. மோகன்ராஜ்
முத்திரைத்தாள் விற்பனையாளர்
உரிமம் எண். 10814 / ஆ 1/2000 / ஓ 2
முத்திபாளையம், தொண்டாமுத்தூர்,
கோவை - 641 109, தமிழ்நாடு.

**MEMORANDUM OF UNDERSTANDING
BETWEEN
GOVERNMENT COLLEGE OF TECHNOLOGY, COIMBATORE
AND
LAND COORDINATES TECHNOLOGY, CHENNAI**

This Memorandum of Understanding (MoU) is signed on this10.11.2022, 2022 between Land Coordinates Technology a Geomatics and Geospatial training and service provider from Chennai having its office at, 6, Parasakthi Nagar, 1st Main Road, Camp Rd, Selaiyur, Chennai, Tamil Nadu 600073, India, Represented by its General Manager, Mr.A.Selvam. For the purpose of this MOU the company shall hereinafter referred to as LCT as which expression shall include its successors, legal heirs and assigns on the one part.


Principal
Government College of Technology
Coimbatore -641 013.



And

Government College of Technology, Coimbatore affiliated to Anna University, Chennai, approved by AICTE, New Delhi having its location at Thadagam Road, Coimbatore - 641013, involved in providing quality higher education, research and extension activities for over 77 years (hereinafter for the purpose of this MoU referred to as GCT), represented by **Dr. P. Thamarai**, The Principal.

1.0 PREAMBLE AND SCOPE

1.1 Land Coordinates Technology (LCT) is a potential firm of the Industry. The team is composed of well qualified engineers and trainers. They work towards enlightening the young minds with the value and purpose of the emerging technologies in the Civil, Geomatics and Geospatial field. The company offer courses from basics to the advanced technology that suits students, graduates and experienced professionals. The services division of LCT spreads its services of, GIS, Photogrammetry, Drone / UAV Survey, LiDAR Scanning and processing and Civil Surveys to many esteemed organisations.

1.2 LCT and GCT are desirous for mutual interaction in areas jointly identified by the two parties, including imparting training to the faculty members of GCT, providing projects, internship to UG and PG Civil Engineering students, Collaboration in research and instituting innovation award and undertaking identified projects jointly by GCT and LCT

1.3 This MOU details the scope of collaboration and the terms and conditions, financial arrangements wherever applicable, intellectual property rights, responsibilities and obligations of LCT and GCT.

2.0 VALIDITY PERIOD OF MOU

2.1 This MOU shall commence on ~~10.11.2022~~ and subject to the provisions of this MOU for its earlier termination shall continue for a period of 5 years. The MOU shall be extended for further period, as may be mutually agreed by both parties.

3.0 AREAS OF COLLABORATION

3.1 Value added Training Programme for Students

To impart practical exposure, LCT will consider providing value added training programme to the Civil Engineering students of GCT. The time, duration and mode of training shall be discussed and decided mutually.

3.2 Project Work

Project Works identified by LCT to be carried out by Civil Engineering students of GCT under the joint supervision of the faculty members of GCT and Experts of LCT and also GCT and LCT shall jointly collaborate for carrying out identified projects of mutual interest. The roles and responsibilities of such identified projects shall be discussed and decided mutually on a case to case basis.

3.3. Faculty development programme

To enable faculty members to have practical exposure, LCT will consider providing training to the GCT faculty for short duration. The time and duration of such training will be decided by both GCT and LCT, taking in to consideration the workloads of both parties so that the core activities of the parties are not affected.

3.4 Campus Recruitment

LCT will consider the Civil Engineering students of both UG and PG programmes of GCT for placement with LCT depending upon their need.

3.5 Guest Lectures & Event collaboration

Guest lectures shall be delivered by the personnel of LCT for the benefit of students and faculty of GCT. The LCT will consider to collaborate with GCT for conducting workshop, conference (National/International), Seminars etc. (off line/online)

3.6 Internship for Students

LCT will consider providing internship for the Civil Engineering students of both UG and PG programmes of GCT for a period of minimum 30 days for the benefit of students.

4.0 INTELLECTUAL PROPERTY RIGHTS

4.1 Both LCT and GCT are free to identify other relevant areas of interaction which may arise out of their needs in future through mutual consultation wherever possible. Wherever LCT and GCT jointly work on innovative research projects and if it results in breakthrough innovations, both parties shall have equal right to patent the process / new findings, However, with regard to commercialization of patent rights, GCT is willing to relinquish its right to LCT subject to the condition that proper compensation is made to GCT on mutually agreed terms and conditions.

5.0 RELATION SHIP BETWEEN THE PARTIES

5.1 Neither GCT nor LCT is or will be an agent or legal representative or partner of the other. Neither of them is or shall be responsible for the debts incurred by the other or be bound by any contracts or representations made by the other or any obligations undertaken by the other. Neither of them is or shall be an employee or franchisee of the other nor does this MOU creates a joint venture or any similar relationship between them unless specifically agreed and approved.

6.0 MONITORING OF IMPLEMENTATION

6.1 A monitoring committee shall be formed by LCT and GCT with two members nominated form LCT and two members from GCT for planning, coordination and implementation of the various aspects of this MOU. The monitoring committee will also review progress of the work periodically and identify new areas which will be beneficial to both parties. Separate committee may be constituted by the monitoring committee wherever necessary for specific tasks / projects identified in the area of collaboration in pursuance of this MOU.


7.0 GENERAL

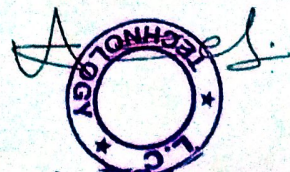
7.1 This MOU may be terminated by either party by giving notice of three months.

Either party may terminate this MOU if either of the parties is not satisfied with the arrangement for reasons beyond their control for going ahead with the implementation of the provision of this MOU and such reasons beyond control continue for a period of six months.

There shall be no liability on the part of any party to the other arising from the termination of this MOU provided that in case of this agreement coming to an end by earlier termination as aforesaid the ongoing research projects and testing shall be completed as per plan agreed to by LCT and GCT and both parties shall fulfill their respective obligations as per this agreement.

7.2 This MOU is not binding on either of the parties hereto, except as specifically set out hereto . This MOU is intended to express the broad understanding of the parties and as a broad framework for working together on a specific opportunity as detailed herein subject to entering into a definitive agreement.


Principal
Government College of Technology
Coimbatore -641 013.



7.3 Neither of the Parties shall at any time, disclose to third party and confidential information of the other party, which is acquired pursuant to this agreement without the prior written consent of the other party.

8.0 FORCE MAJEURE

8.1 Neither party hereto shall be responsible for delays or failures in performance resulting from acts beyond its reasonable control and without its fault or negligence.

9.0 DISPUTE RESOLUTION

9.1 In the event of any dispute or disagreement between the parties hereto each party shall appoint a designated officer to meet for the purpose of resolving the dispute. If no agreement is reached within a period of 60 days, it will be referred to a mutually agreed arbitrator.

9.2 The Arbitration and Conciliation ACT, 1996 and the rules made there under or any statutory modification or re-enactment thereof or any rules made there under shall be deemed to apply to the arbitration proceeding under this clause.

9.3 The Arbitration proceedings shall be in English language and the place of arbitration proceedings shall be at Chennai.

9.4 This MOU shall be subject to and governed by the appropriate laws of India. The jurisdiction shall be competent courts in Chennai only.

10.0 COMMUNICATION

10.1 All communications between the parties shall be in writing and in English and will be served to respective postal addresses mentioned in this MOU. This MOU is intended to express the broad understanding of the parties regarding their working with each other to the extent possible for their mutual benefit.

**For Government College of Technology,
Coimbatore**



Signature

Dr. P. Thamarai,

**Principal
Principal
Government College of Technology
Coimbatore -641 013.**

**For Land Coordinates Technology
Chennai**



Signature


Mr. A. Selvam

General Manager

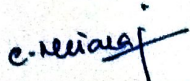


Witness

1) Signature

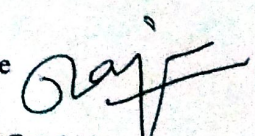

**Dr. R. THENMOZHI, Ph.D.,
Head of the Department
Department of Civil Engineering
Government College of Technology
Coimbatore - 641 013.**

2) Signature (C. NEELARAJ)



Witness

1) Signature


T. RAJESH

2) Signature