

CARMEL COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

Report: Academic years - 2019-2020 and 2020-2021

Institute Vision

To mould distinctive engineers with integrity and social commitment

Mission

1. Extend harmonious curricular and co-curricular exposure to the students
2. Equip the students to accomplish career goals upholding moral values
3. Encourage the students to contribute for the sustainable development of the society.

Mission Statement

The Institute aims at the holistic development of students. Together with developing Engineering skills, the innate qualities of students are nurtured and groomed to make sure that students turn out as distinctive engineers. In addition to it, efforts are made to make sure that our graduates have a strong commitment to integrity and social responsibilities.

Department Vision

To groom professionally competent and morally responsible Civil Engineers

Department Vision Justification:

The department envisions to groom professionally competent and morally responsible Civil Engineers. When the department vision is broadly aligned with that of the institute, it includes a few aspects that are specific to the field of civil engineering.

The challenges faced by engineers are two-fold: be morally responsible and technically competent. Technical competency is acquired through extensive learning and practice. Lack of technical competency tends to follow conceptual practices in engineering which could be entangled with malpractices. To inculcate moral values in engineering the students should be guided to develop ethics and principles in professional life and that is what we aimed at.

When the institute envisions to mould distinctive engineers with integrity and social commitment, the Department of Civil Engineering view professional competence and moral values as basics for integrity and social commitment.

Department Mission

M1: Impart theoretical, practical and industry knowledge in Civil Engineering

M2: Equip the students to pursue higher studies and lifelong learning

M3: Inculcate professional and ethical responsibilities related to industry, society and environment

Department Vision – Mission Relation

M1: Impart theoretical, practical and industry knowledge in Civil Engineering

This mission contributes to making a graduate professionally competent. The theoretical knowledge provided is abstract in nature. This theoretical knowledge has the potential to solve problems in multiple circumstances. Practical knowledge, though limited in scope, can help a student to better understand the theoretical concepts. Industry knowledge, which is even narrower in scope helps a student to learn the process of linking theoretical knowledge to help solve real world problems.

M2: Equip the students to pursue higher studies and lifelong learning

This mission contributes in shaping a graduate to improve their professional competency consistently. For this, the students have to motivate and instill to develop curiosity and determination for a better professional life by lifelong learning. They should also be in a position to pick and choose right higher education courses as and when required.

M3: Inculcate professional and ethical responsibilities related to industry, society and environment

This mission contributes to making a graduate morally responsible. A graduate should be aware of the impact of their actions on industry, society and environment. Students are to be equipped to make ethical decisions in fulfilling their professional responsibilities. This will enable them to take appropriate choices in their professional career so that the industry, society and environment can have sustainable development.

Program Outcomes

Engineering Graduates will be able to:

PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2 Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3 Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5 Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6 The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11 Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12 Lifelong learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Educational Objective

PEO1: Excel as practicing engineers, academicians and researchers

PEO2: Hold professional and ethical responsibilities as Civil Engineers while addressing the challenges of the society.

PEO3: Play vital role in the sustained development of infrastructure in the country.

Mission - Program Educational Objective Mapping

	M1	M2	M3
PEO1	3	3	2
PEO2	2	2	3
PEO3	2	3	3

Justification

1. PEO1 – M1 (3)

In order to excel as practicing engineers, academicians and researchers, it is essential to have theoretical, practical and industry knowledge.

2. PEO1 – M2 (3)

Pursuing higher education is a must for academicians and researchers. Similarly, lifelong learning is an essential trait of practicing engineers.

3. PEO1 – M3 (2)

Professional accountability is essential to succeed as a practicing engineer, academician or researcher.

Ethical behavior is desirable for professional accountability.

4. PEO2 – M1 (2)

Theoretical, practical and industry knowledge makes a graduate capable of making independent decisions. Without independent decision-making capability, a graduate will find it difficult to express their professional and ethical behaviour.

5. PEO2 – M2 (2)

Continuous learning is essential for effective communication with relevant stakeholders. To be a professional means to understand the trends in the industry and to adapt to the changes happening around.

Continuous learning or higher studies can contribute to ethical behaviour

6. PEO2 – M3 (3)

Professional and ethical behaviour inculcated during graduation is essential so that the graduates could hold on to those values while addressing the challenges of the society.

7. PEO3 – M1 (2)

Sustained development requires the ability to understand the long-term effects of actions being undertaken. For this, it is essential to have a sound theoretical, practical and industry knowledge.

8. PEO3 – M2 (3)

Sustained development requires setting up suitable feedback mechanisms so that required modifications could be made to the existing systems. Continuous learning is an important trait that could be useful for this.

9. PEO3 – M3 (3)

As India is a sovereign socialist secular democratic republic, it is essential for a graduate to have the traits of ethics and professionalism. This would enable them to envision an infrastructural development plan that is sustainable in this country.

Civil Engineering Department, an overlook

The department of civil engineering was established in the year 2014. Till date 3 batches of students have completed their B Tech in civil engineering from which we have successfully moulded more than 160 civil engineering graduates. The department provides quality instructions, teaching and technical advisory support for research and development activities covering the Civil Engineering areas like Building Materials and Construction, Surveying, Hydraulics, Concrete Technology, Transportation, Water Resources, Geotechnical, Environmental and Structural Engineering.

Labs- Full-fledged laboratories for Material Testing- I and II , Geotechnical , Transportation, Environmental, Surveying, Hydraulics Engineering and Computer Labs are set up to fulfil all the curriculum related requirements.

Result Analysis of 2019-2020 & 2020-2021 Academic Year

Academic Year 2019-2020

BATCH	NO OF STUDENTS ATTENDED	PASS PERCENTAGE	STUDENTS WITH 8.5 AND ABOVE SGPA
2015(S8) – 2019 Pass out	63	42%	12
2016(S6) – 2020 Pass out	53	53%	1
2017(S4)	58	47%	12
2018(S2)	61	43%	13
2019(S1)	34	58.8%	1

Current Academic Year, 2020-2021

BATCH	NO OF STUDENTS ATTENDED	PASS PERCENTAGE	STUDENTS WITH 8.5 AND ABOVE SGPA	STUDENTS WITH SGPA 9 AND ABOVE
2016(S8) – 2020 Pass out	53	100%	21	6
2017 (S6) – Current S7	58	89.65%	18	8
2018(S4) – Current S5	49	81.67%	10	3

Success Rate of B.Tech Degree holders

BATCH	NO OF STUDENTS ATTENDED	PASS PERCENTAGE
2014	53	90.5%
2015	63	87.3%
2016	53	56.6%
Total	169	78.6%

Faculty Profile (2020-2021)

SI No	Name of Faculty	Qualification	Specialization
1	Dr. Susan Jacob (Former Managing Director of Kerala Water Authority)	PhD, MBA	Environmental Engineering, Masters in Finance
2	Renjith R.	MTech	Computer aided Structural Engineering
3	Soumya P S.	MTech	Geomechanics and Structures
4	Praveena S.	M Tech	Structural Engineering
5	Roopa V	M.Tech	Environmental Engineering
6	Arunkumar R.	M.Tech	Structural Engineering
7	Sherry Rose Jose	M.Tech, Pursuing PhD	Structural Engineering and Construction Management
8	Joseph T.M	M.Tech	Soil Mechanics and Foundation Engineering
9	Devi P Sasi	M.Tech	Water Resources and Hydro informatics
10	Anjana Jose ^x	M.Tech	Environmental Engineering
11	Jestine Augustine	M.Tech	Structural Engineering and Construction Management

12	Joby Kuruville Mathew	M.Tech	Structural Engineering and Construction Management
13	Jayakrishnan P.B.	M.Tech	Structural Engineering and Construction Management
14	Krishnadas S.	M.Tech	Construction Technology and Management
15	Vinay Mathews	MS	Construction Management

x –not in current academic year

The appointment of an Associate Professor in Geotechnical Engineering and an Assistant Professor in Transportation Engineering are in process.

Qualified faculty members having specializations in various branches of Civil Engineering enables to enrich the student knowledge and helps students to take up Projects of socially relevant topics of their own interest.

Student's Association

CCEASON (Carmel Civil Engineering Association) is the association of students of Civil Department which is formed to provide a platform for the student to gather and interact, exchange knowledge and experiences. It provides them opportunities to conduct various technical seminar, workshops and deliberations. It focuses mainly on enhancing the engineering skills, soft skills and the overall development of the students. The association aims to give immense opportunities for improving the technical knowledge of students and bringing awareness in the practical aspects of Civil Engineering. The association was formally inaugurated on 16th of March, 2017 by Er.T. Rajendran, Chief Project Manager, HLL, Life Care (GOI), Hubly, Karnataka (Chief Engineer, KWA (Rtd).

Artech, a biannual newsletter, prepared with the joint effort of staff and students of department of civil engineering was released on November 2018. The paper work for the second edition of Artech, is in progress.

Several events like invited talks, workshops, field surveys were conducted by CCEASON for students to make awareness about the latest trends in Civil Engineering.

Cooperation with Professional Bodies

Student chapters provide unique opportunities for networking, mentoring and bonding over common interest within the student community and communities outside the institution.

- **Institution of Engineers India (IEI) Students Chapter, Civil**

The IEI student's chapter (Civil) was Inaugurated by Er. KK Gopalakrishnan Nair FIE Chairman, Institution of Engineers India, Kerala state Centre on 15th November 2018. 161 students were enrolled as members. The executive committee with Mr. Anto Jose, S7 Civil as the student convener and Dr. Susan Jacob, Professor & Head of the Department as the advisor was nominated by the General Body held on 15th November 2018.

The second General Body meeting was held on 30th September 2019. The meeting nominated Asst. Prof. Renjith R as the advisor, Asst. Prof. Joseph T M as the treasurer and Mr. Arun Kumar R (S5 Civil) as student convener. A 10-member student executive committee was also formed.

The third general body meeting was held on 18th January 2021. The meeting nominated Asst. Prof. Jayakrishnan P B as the advisor, Asst. Prof. Roopa V as treasurer and Mr. Amalkar M (S7 Civil) as the student convener.

• Skill Hub

Skill Hub-A program to impart civil engineering software training and personality development training for placement assistance was in existence from March 2020 onwards. The program was scheduled in such a way that the students are getting in-house training for civil engineering design software and project management software before they complete the B. Tech course. M/s InterCAD Systems Pvt. Ltd is conducting the classes and sharing the soft skills.

International Projects

Department of Civil Engineering, CCET had an International collaboration with Murdoch University, Perth, and Moerk Water Solutions, Australia. The Project was undertaken under the 2019 and 2020 New Colombo Plan Funding financed by the Australian Government.

In 2019 two batches of 20 students along with experts from Australia had visited and worked along with the students and staff of CCET. During this period Murdoch University in collaboration with Moerk Water Solutions had developed a project - Solar Powered Desalination Plant for treating the brackish and saline water of the Kuttanad region.

The project team headed by Dr. Susan Jacob, CCET along with students of Carmel College visited several locations & the Desalination plant was tested and conducted field demonstration in various Panchayaths. The group also conducted a solid waste management study for Ambalappuzha North Panchayath after visiting every ward of the Panchayath.

In 2020, the first batch of 6 students visited the college from 29th January and the team of 8 students from Carmel College under the guidance of Dr. Susan Jacob had conducted another socially relevant project “ Study on Small Rural Water Supply Schemes Implemented on Demand-Driven Approach in Kooropada and Meenadom Panchayaths “. The second batch could not avail the opportunity in the context of the COVID 19 Protocol.

Dr Susan Jacob, HOD Civil Engineering Department attended the 16th International Specialized Conference on “Small water and waste water systems” at Murdoch Australia from 1st to 5th December 2019 and presented a paper titled “Governance, Policy and Regulation of Integrated Rural water supply systems, Kerala Model.

Field Studies Conducted

- Survey camp was conducted covering 54 schools under Alappuzha Municipality as a social commitment for preparing contour maps and master plan of all the schools under Alappuzha Sub District were prepared. Among this, Master plans of 23 schools were prepared and submitted for onward submission to Government of Kerala.
- A 7day survey camp was organized in Muhamma Grama panchayath to provide an opportunity and real time experience in conducting field survey.

Important Events Organized by Department

To achieve the mission, imparting theoretical, practical and industry knowledge in Civil Engineering through various co-curricular activities were organized by the department during these period and important events are listed below.

Sl No	Topic	Event	Date-Month-Year	Resource Person/Organisation
1	Concrete Mix Design	Workshop	22 & 23-02-2019	Er Shelly S Fernandez, Chairman ICI Cochin
2	World Water Day	Technical Session	21-03-2019	Dr Susan Jacob, Former Managing Director and Technical Member of Kerala Water Authority & Er Cinu P Thomas- Managing Director InterCad Systems Pvt Ltd
3	Student Tour	Tour with Industrial Visit	28-06-2019	Carmel College of Engineering & Technology
4	Alumni Meet	Meeting	29-06-2019	Carmel College of Engineering & Technology
5	Industrial Visit	Industry-Institute Interaction	22-08-2019	HLL Infra Tech Services
6	Application of Non-destructive Testing In Civil And Mechanical	Workshop	05-10-2019	Blitz Academy Vishal S -Centre Manager
7	Shaping Young Minds Programme	Workshop	08-02-2020	All India Management Associations
8	Visit to Water Treatment Plant	Industrial Visit	23-02-2020	Kerala Water Authority, Headworks Division, Aruvikkara, Thiruvananthapuram
9	Skill Hub	Civil Engineering Software and Personality	28-2-2020	Smt. M Anjana IAS, Dist. Collector, Er. Cinu P Thomas,

		Development Training		CEO, InterCAD Systems Pvt, Ltd.
10	Opportunities for Civil Engineers in The Public Sector	Webinar	26.09.2020	Revith CK, Civilianz General Manager
11	Online Training for Staad.Pro and Staad.Pro Foundation	Online Training	Commenced On 11-10-2020 – continuing	InterCad Systems Pvt Ltd

Co-curricular Activities

Sl No	Event	Date	Resource Person
1	Anti-Narcotic Colloquium	01-11-2020	Mr Manoj Krishneswary, Vimukthy Mission Master Trainer, Excise Preventive Officer
2	How A Student Should Respond to the Changing Scenario	26-10-2020	Asst. Prof Renjith R, Head Corporate Relations and Placements, CCET
3	Stress Management	25-10-2020	Dr Deenu Chacko, Dept of Psychiatry, TDMC
4	An Hour with The Youth	24-10-2020	Dr Alexander Jacob IPS

Research and Consultancy

The department offers technical consultancy services following the guidelines of Director of Technical Education to impart practical knowledge and expertise to our students, faculty and technicians. This also provide ample opportunities for the department in serving the community, the government departments and private agencies by sharing our knowledge and giving technical supports. A few of our clients includes

- 1 Kerala Water Authority
- 2 Public Works Department
- 3 Irrigation Department
- 4 Railway
- 5 National Highway Authority of India
6. Local Bodies – Panchayaths
- 6 Private Contractors and Consulting Engineers

The total works were carried out to an amount of Rs.4.5 lakhs till 2020.

Industry Institute Interactions

The department is currently having MoU with the following firms

1. InterCAD Systems Pvt Ltd
2. ALG International Institute of Technology, Edappally
3. Master Engineering Solutions, Ernakulam
4. De Experts Engineers and Quantity Surveyors, Cochin
5. Intercadd Systems Pvt Ltd for Conducting Workshops and Training Programmes in College.

Student Achievements

- Deric Anto Roy, Gopi Krishnan K S, Jackson T George, Jijo George and Shebin V Thomas (B Tech 2014 Admn.) secured 1st position in TECHASTHRA, a technical contest of SJCET Start-up Bootcamp 's Decathlon event conducted as part of ASTHRA 2018 in St. Joseph 's College of Engineering and Technology, Palai.
- Our students bagged the runner up trophy of Zonal volley ball match 2018.
- Susan Renu Varghese (Batch 2016) was selected in the KTU University table tennis team of 2019-2020 academic year.
- 2015 batch students guided by Dr Susan Jacob presented their project at Kerala Nirmithi Alappuzha edition of KIIFB projects 2020.
- Mehnas Ashraf (2018 batch) selected for the district level power quiz 2020 hosted by KSEB.
- Susan Renu Varghese (Batch 2016) scored SGPA 10 in eight semester exams.
- Megha Dhanapal (Batch 2017) scored SGPA 10 in sixth semester exams.
- Haripriya R (Batch 2018) scored SGPA 10 in Fourth semester exams
- Susan Renu Varghese, Denila Ann Roy, Amrutha Chandran and Sreekumar secured placement in Aarbee Structures Private Limited.

Conclusion

The above brief report is presented for further discussion and creative suggestions.

Dr. Susan Jacob,

Head of the Department