SDG PORTFOLIO

Sustainable Development Goals

SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY

Civil Engineering Department

B.Tech Civil Engineering

Batch: 2020–2024

DEPARTMENT OF CIVIL ENGINEERING

Building Foundations for Tomorrow Excellence in Civil Engineering.

The Department of Civil Engineering at SSET, established in 2001, is characterized by its dedicated and experienced faculty. It offers both undergraduate and postgraduate programs in Civil Engineering, specializing in Computer Aided Structural Engineering and Environmental Engineering. The department's teaching approach emphasizes professional ethics and service learning, integrating community service with instruction. Interactive sessions with industry experts, seminars, workshops, and conferences keep students and faculty updated on industry trends. The department's seven well-equipped laboratories support research activities and consultancy projects for government and non-government organizations. Notable projects include site surveys, road surveying, and environmental impact assessments. Additionally, the department collaborates closely with SCMS Water Institute (SWI), contributing to sustainable water management and community development. SWI's consultancy work, such as water auditing, rainwater harvesting, and disaster preparedness planning, provides students with valuable real-world experience. The success of the department's alumni in academia, industry, and government organizations globally attests to the quality of education provided. The Department of Civil Engineering encourages students to contribute toward sustainable development through academic projects, environmental activities, field studies, outreach programs, and innovative engineering solutions aligned with Sustainable Development Goals.

Vision

To be a Department of excellence providing quality education and to engage in research activities in diverse fields of Civil Engineering.

Mission

- Impart quality education to our graduates in all fields of Civil Engineering.
- Mould technically competent graduates who are prepared to meet the current global engineering challenges.
- Create socially committed and ethically responsible professionals performing cutting edge research that will positively impact and improve our profession and society.
- Instill in our graduates a passion for lifelong learning.

— Accredited by —

NBA

CE, CSE, ME

ECE, EEE

SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY

Civil Engineering Department

No. of Academic Projects:1

Academic Projects:4

No. of Academic Projects:6
No. of student Internships:3
No. of Department Activities:5
No. of Research Project: 1

Academic Projects:1
Research Project: 1

No. of Academic Projects:5
No. of student Internships:13
No. of Department Activities:2

Academic Projects:1

No. of Academic Projects:8
No. of student Internships:13
No. of Department Activities:1

Department Activities:7

No. of Academic Projects:7

No. of Academic Projects:5
No. of student Internships:2
No. of Department Activities:2

Accredited by

NBA

CE, CSE, ME
ECE, EEE

SDGs addressed in Academic Projects

Sl. No	Project Title	Student Name	Brief Description	Relevant SDG(s)	Justification
1	Assessing the mechanical performance of carbonation-cured concrete infused with steel slag versus conventional concrete curing methods	Mr. Adithya Hari Mr. Aditya Lakshmi Sujith Mr. Amith K Anil Mr. Devanarayanan S	Evaluates strength, durability, and CO_2 absorption potential of carbonation-cured concrete incorporating steel slag.	SDG 9 – Industry, Innovation and Infrastructure SDG 12 – Responsible Consumption and Production SDG 13 – Climate Action	This project supports sustainable industrial innovation by promoting low-carbon construction materials that utilize industrial by-products like steel slag. Carbonation curing enhances CO_2 sequestration, directly contributing to climate-change mitigation (SDG 13). It reduces dependence on natural resources and encourages responsible consumption and production (SDG 12). Development of durable and eco-efficient concrete aligns with sustainable infrastructure goals under SDG 9.
2	Experimental study on mechanical properties of glasscrete pavement block	Ms. Anjali Vincent Ms. Asna Muneer Ms. Dhanalakshmi M V Ms. Diya Jose	Investigates the use of waste glass as a partial replacement in pavement block production.	SDG 9 – Industry, Innovation and Infrastructure SDG 12 – Responsible Consumption and Production	Using waste glass in pavement blocks reduces landfill dumping and promotes a circular-economy approach, thereby supporting SDG 12. The project enhances the engineering performance of alternative materials, encouraging innovation in construction technologies (SDG 9). It demonstrates sustainable use of waste materials for infrastructural development.
3	Building blocks using Kuttanad clay	Ms. Anagha P V Ms. Aswani P B Ms. Silpa E S Ms. Sukanya K S	Examines feasibility of manufacturing stabilized building blocks using locally available Kuttanad clay.	SDG 9 – Industry, Innovation and Infrastructure SDG 11 – Sustainable Cities and Communities SDG 12 – Responsible Consumption and Production	The project reduces the environmental burden by replacing conventional burnt bricks with locally available clay, minimizing energy-intensive processes. This supports sustainable building material development (SDG 9) and promotes affordable and resource-efficient construction practices (SDG 11). It encourages responsible use of local materials and reduces carbon emissions, aligning with SDG 12.

Sl. No	Project Title	Student Name	Brief Description	Relevant SDG(s)	Justification
4	Road safety audit at accident prone intersection in Ernakulam district.	Mr. Devadath Bijukumar Ms. Divega M R Ms. Keerthana Christopher Mr. Rohith Sreenivas	Evaluates geometric design, traffic flow, and safety issues at a high-accident intersection.	SDG 3 – Good Health and Well-Being SDG 11 – Sustainable Cities and Communities	The study enhances transportation safety by identifying hazards, improving design, and reducing the likelihood of accidents, aligned with reducing road fatalities under SDG 3. It also promotes safe, accessible, and sustainable traffic management systems, contributing to resilient and inclusive urban mobility under SDG 11.
5	Effect of flood water stagnation on fibre reinforced soil	Ms. Anjali K Ms. Aswathi S Mr. Bibin Biju Mr. Akash Menon	Studies how prolonged water stagnation influences strength and behaviour of fibre-reinforced soil.	SDG 11 – Sustainable Cities and Communities SDG 13 – Climate Action	With increasing flood events due to climate change, understanding soil behaviour under waterlogging helps design more resilient infrastructure. This supports climate adaptation practices (SDG 13). The findings assist in preventing infrastructure failures in flood-prone regions, contributing to safer and more disaster-resilient communities (SDG 11).
6	Strength and durability characteristics of crushed brick-rice husk fly Ash-lime mix as a subbase material in pavement	Mr. Abdul Basith Mr. Abhiram T S Ms. Adeeba T A Mr. Shine Shaji	Assesses suitability of recycled crushed brick and industrial by-products as sustainable pavement subbase.	SDG 9 – Industry, Innovation and Infrastructure SDG 12 – Responsible Consumption and Production	The project encourages the reuse of industrial and demolition wastes, reducing landfill burdens and extraction of virgin resources. It supports the development of innovative and eco-friendly pavement layers, aligning with SDG 9. Utilizing recycled materials in construction also promotes sustainable consumption and production patterns under SDG 12.
7	Spatial distribution of contaminants in groundwater sources	Mr. Akshay M D Mr. Alwyn Jose Antony, Ms. Karthika M P, Ms. Raihana Rahmath K U	Maps contaminant levels in groundwater using spatial GIS analysis.	SDG 6 – Clean Water and Sanitation	Mapping groundwater contamination provides critical data for ensuring safe drinking water (SDG 6). The study aids policymakers in sustainable water-resource management.

Sl. No	Project Title	Student Name	Brief Description	Relevant SDG(s)	Justification
8	Scale deposition characterization in irrigation pipelines by groundwater	Mr. Amal Krishna Ms. Anjali K S Ms. Arsha S Mr. Goutham S P	Identifies chemical characteristics of groundwater causing scale deposition and impacts on irrigation efficiency.	SDG 6 – Clean Water and Sanitation SDG 2 -Zero Hunger SDG 12 – Responsible Consumption and Production	Understanding scale formation improves the efficiency of irrigation pipelines, supporting sustainable agricultural productivity (SDG 2). It ensures efficient water use and reduces energy loss, aligning with SDG 6. Mitigation of scaling minimizes maintenance costs and promotes sustainable resource use (SDG 12).
9	Geochemical distribution and environmental risk assessment of heavy metals in an urban waterbody	Mr. Akshay Ajith Ms. Blessy Grace Mr. Geo Antony Ms. Christeena Mariya Paul	Analyzes heavy metal concentrations and evaluates ecological risk using standard indices.	SDG 6 – Clean Water and Sanitation SDG 14 - Life Below Water SDG 15 - Life on Land	The project identifies pollution levels and ecological risks, contributing to restoring and conserving water quality (SDG 6). Heavy metal contamination impacts aquatic life, making the study relevant for SDG 14. The assessment provides insights for protecting surrounding soil and terrestrial ecosystems, supporting SDG 15.
10	Drought Intensity Mapping	Ms. Aleena Ginan Mr. Akhil Fayis K, Mr. Arun R K Mr. Martin Antony P J	Uses meteorological and remote sensing data to map drought-prone zones.	SDG 13 – Climate Action SDG 15 - Life on Land	Mapping drought severity helps predict water scarcity and supports climate-resilient planning, aligning with climate action targets under SDG 13. It also aids sustainable land and vegetation management by identifying vulnerable regions, contributing to ecosystem conservation under SDG 15.
11	Route optimization and allocation of waste bin using GIS	Mr. Ajmal C S Mr. Asfar Sakeer Mr. Ashwin S Pillai Mr. Aswin P Biju	Develops optimal waste-collection routes and efficient bin allocation through GIS modelling.	SDG 11 – Sustainable Cities and Communities SDG 12 – Responsible Consumption and Production	Optimizing waste-bin placement and collection routes enhances municipal solid-waste efficiency, supporting sustainable cities (SDG 11). GIS-based planning reduces fuel consumption, operational costs, and emissions. It encourages systematic waste handling aligned with SDG 12: Responsible Consumption and Production.

Sl. No	Project Title	Student Name	Brief Description	Relevant SDG(s)	Justification
12	Sediment Source Fingerprinting	Mr. Juno Thankachen Mathew Mr. Naveeneth Krishna Ms. Lakshmi V Jayan Ms. Rilna C Bijoy	Identifies origin of sediments in rivers using geochemical and statistical methods.	SDG 6 – Clean Water and Sanitation SDG 15 - Life on Land	Identifying sediment sources helps control erosion and prevent sediment pollution in rivers, contributing to clean water management (SDG 6). It supports watershed restoration, soil conservation, and sustainable catchment management, aligning with SDG 15: Life on Land.
13	Spatial analysis and noise mapping of Thrissur City	Ms. Milna Jose Ms. Meera Aji Ms. Karthika M. Nair Ms. Radhika P	Evaluates urban noise levels using GIS and produces noise-pollution maps.	SDG 11 – Sustainable Cities and Communities	The project enables city planners to adopt noise-control measures, contributing to the development of sustainable and healthy urban environments (SDG 11).
14	Urban sprawl mapping	Ms. Nihara Raghavan Ms. Karen Mary Francis Mr. Nihal N Mr. Stein Savio Pereira	Uses satellite imagery to analyze expansion patterns and land-use changes.	SDG 11 – Sustainable Cities and Communities SDG 15 - Life on Land	Mapping unregulated urban growth helps promote planned urban expansion and prevents loss of natural habitats, aligned with SDG 15. It supports sustainable land-use planning and infrastructure development, contributing to SDG 11: Sustainable Cities and Communities.
15	Effect of flood water stagnation on beach sand.	Ms. Meera M Mr. Nithul Raghavan Mr. Sobiin Varghese Ms. Sreelakshmi M	Studies geotechnical property changes in beach sand under flood-water exposure.	SDG 11 – Sustainable Cities and Communities SDG 13 – Climate Action	Coastal regions are highly vulnerable to flooding. This study provides data on how sand properties change, assisting in designing stable coastal structures. It contributes to disaster-resilient infrastructure (SDG 11) and helps communities adapt to climate-change–induced flooding, supporting SDG 13.

Sl. No	Project Title	Student Name	Brief Description	Relevant SDG(s)	Justification
16	Study of effect of admixtures in self-healing concrete	Mr. Tony Prince Mr. Varun Vijayan Ms. Sandhra Subhash Ms. Neha Prakash	Investigates self-healing capabilities of concrete containing chemical and mineral admixtures.	SDG 9 – Industry, Innovation and Infrastructure SDG 12 – Responsible Consumption and Production	Self-healing concrete minimizes maintenance, extends structure lifespan, and reduces material consumption, which aligns with SDG 12. It promotes innovative construction technologies that improve infrastructure sustainability, supporting SDG 9.
17	Pervious concrete	Ms. Hana Fathima B S Mr. Pranav Menon V Mr. Nishal Unni Ms. Sreelakshmi Sajeev	Evaluates permeability and strength of pervious concrete used for storm water management.	SDG 6 – Clean Water and Sanitation SDG 11 – Sustainable Cities and Communities SDG 13 – Climate Action	Pervious concrete enhances storm water infiltration, reduces urban flooding, and improves groundwater recharge—key components of SDG 6. It supports sustainable city drainage systems under SDG 11. The approach reduces the impacts of extreme rainfall events, contributing to climate adaptation under SDG 13.
18	Phytoremediation of Heavy Metals using Water Hyacinth	Ms. R Kavya Mr. Muhammed Adhil K J Mr. Mohammed Rawas T Ms. Karthika Chandran Ms. Thamanna V A	Studies the potential of water hyacinth for removing heavy metals from polluted water.	SDG 6 – Clean Water and Sanitation	Water hyacinth effectively absorbs heavy metals and restores contaminated water sources, improving clean water access (SDG 6).

SDGs addressed in Student Industrial Training

Sl. No.	Student Name	Industry / Organization	Area of Training	Relevant SDGs	Justification
1	Mr. Abdul Basith	AC City Builders and Developers	Building construction	SDG 9, SDG 11	Supports sustainable building construction and resilient infrastructure development practices.
2	Mr. Abhiram T S	AC City Builders and Developers	Building construction	SDG 9, SDG 11	Promotes responsible construction methods and sustainable urban infrastructure growth.
3	Mr. Asfar Sakeer	AC City Builders and Developers	Building construction	SDG 9, SDG 11	Enhances practical knowledge in sustainable construction and infrastructure execution.
4	Mr. Aswin P Biju	AC City Builders and Developers	Building construction	SDG 9, SDG 11	Encourages safe and sustainable building construction practices in urban development.
5	Mr. Shine Shaji	AC City Builders and Developers	Building construction	SDG 9, SDG 11	Supports infrastructure development through practical exposure to construction activities.
6	Mr. Rohith Sreenivas	AC City Builders and Developers	Building construction	SDG 9, SDG 11	Promotes resilient and sustainable construction practices for community development.
7	Mr. Martin Antony P J	AC City Builders and Developers	Building construction	SDG 9, SDG 11	Contributes to sustainable urban infrastructure through building construction practices.
8	Mr. Ajmal C S	AISH Infrastructure Developers	Building construction	SDG 9, SDG 11	Supports innovative infrastructure development and sustainable construction methodologies.
9	Ms. Dhanalakshmi M V	Desai Homes, Thrikkakara	Building construction	SDG 9, SDG 11	Encourages sustainable residential infrastructure and responsible urban development.

10	Ms. Anagha P V	Creo Homes, Cochin	Building construction	SDG 9, SDG 11	Supports quality housing construction and sustainable urban infrastructure practices.
11	Ms. Aswani P B	Creo Homes, Cochin	Building construction	SDG 9, SDG 11	Promotes resilient construction practices and sustainable community development.
12	Ms. Karthika M P	Creo Homes, Cochin	Building construction	SDG 9, SDG 11	Enhances practical exposure to sustainable building construction techniques.
13	Ms. Raihana Rahmath	Creo Homes, Cochin	Building construction	SDG 9, SDG 11	Supports environmentally responsible and sustainable residential construction practices.
14	Ms. Silpa E S	Creo Homes, Cochin	Building construction	SDG 9, SDG 11	Contributes to sustainable urban infrastructure through practical construction training.
15	Mr. Devadath Bijukumar	Stay Heights Designers and Builders	Building construction	SDG 9, SDG 11	Promotes sustainable building practices and resilient infrastructure development.
15	Ms. Sreelakhmi M	TechMAGHI	Interior designing	SDG 9, SDG 11	Promotes innovative and sustainable interior design practices for improved built environments.
16	Ms. Karthika M Nair	ACADEMOR	Interior designing	SDG 9, SDG 11	Supports sustainable and creative design solutions in residential and commercial spaces.
17	Ms. Radhika P	ACADEMOR	Interior designing	SDG 9, SDG 11	Encourages sustainable interior planning and efficient utilization of built spaces.
18	Ms. Lakshmi V Jayan	Kochi Municipal Corporation	Municipal services, urban systems	SDG 9, SDG 11	Supports sustainable urban management and efficient municipal infrastructure systems.

19	Ms. Rilna C Bijoy	Kochi Municipal Corporation	Municipal services, urban systems	SDG 9, SDG 11	Enhances understanding of sustainable city planning and public service infrastructure.
20	Mr. Tony Prince	SFS Highland Park	Residential project exposure	SDG 9, SDG 11	Promotes sustainable housing development and resilient urban infrastructure practices.
21	Mr. Juno Thankachen Methew	SFS Highland Park, Thrikkakara, Ernakulam	Residential project exposure	SDG 9, SDG 11	Supports responsible residential construction and sustainable community development.
22	Mr. Stein Savio Pereira	Techbyheart	AutoCAD, drafting tools	SDG 4, SDG 9	Enhances technical education and promotes innovation in engineering drafting practices.
23	Ms. Nihara Raghavan	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Supports skill development in digital drafting and modern engineering technologies.
24	Mr. Nithul Raghavan	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Encourages technical competency and innovation in engineering design tools.
25	Ms. Sreelakshmi Sajeev	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Promotes quality technical education and digital engineering skills.
26	Ms. Karen Mary Francis	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Supports technology-driven learning and engineering drafting proficiency.
27	Mr. Muhammed Adhil K J	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Enhances practical knowledge in digital drafting and engineering applications.
28	Mr. Nihal N	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Encourages innovation and technical skill development using drafting software.
29	Mr. Nishal Unni	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Supports modern engineering education and digital infrastructure design practices.

30	Ms. R Kavya	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Promotes technical competency in drafting and engineering design methodologies.
31	Mr. Navaneeth Krishnan	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Enhances engineering visualization and technology-based learning practices.
32	Mr. Pranav Menon	Techbyheart, Ernakulam	AutoCAD, drafting tools	SDG 4, SDG 9	Encourages skill development in digital drafting and infrastructure design tools.
33	Ms. Neha Prakash	LearningBot	AutoCAD	SDG 4, SDG 9	Supports quality technical education and digital engineering skill enhancement.
34	Ms. Sandhra Subhash	Manjunath and Co. Consulting Engineers	Structural consultancy	SDG 9, SDG 11	Promotes sustainable structural engineering solutions and resilient infrastructure practices.

SDGs addressed in Department Activities

Sl. No.	Department Activity	Month & Year	SDG Mapping	Justification
1	Training on softwares	Aug-23	SDG 4	Enhanced technical competency and digital learning skills among students.
2	A session on project report/basic journal paper writing skills	Aug-23	SDG 4	Improved academic writing, research documentation, and communication skills.
3	Traffic survey conducted at Collectorate junction by NATPAC	Aug-23	SDG 9	Helped students understand traffic management and sustainable urban transportation systems.
4	Workshop on MS office tools for Research	Aug-23	SDG 4	Developed digital and research presentation skills required for higher education and professional work.
5	Onam pookkalam design competition with the theme “Match with nature”	Aug-23	SDG 11	Promoted environmental awareness and sustainable cultural practices.
6	A Training on MIDAS Software by Dr. Ratish Menon	Sep-23	SDG 4	Provided exposure to advanced structural analysis software used in industry.
7	Training on GIS software	Oct-23	SDG 4	Introduced modern geospatial tools for infrastructure planning and analysis.
8	Alumni talk by Ms. Anjana Maria Saviour	Oct-23	SDG 4	Motivated students through industry exposure and career guidance.
9	Orientation program on quantity surveying	Oct-23	SDG 4	Enhanced knowledge in estimation and construction management practices.
10	Alumni talk to B.Tech S7 student	Nov-23	SDG 4	Strengthened professional awareness and career readiness.
11	Site visit to dam site and drinking water treatment plant under Kerala Water Authority, Peechi	Nov-23	SDG 6	Helped students understand water resource management and treatment systems.

Sl. No.	Department Activity	Month & Year	SDG Mapping	Justification
12	Technical Talk on "Quality Management in Concrete Construction"	Mar-24	SDG 9	Emphasized quality construction practices and durable infrastructure development.
13	Water Day organised by FRAMES	Mar-24	SDG 6	Created awareness regarding water conservation and sanitation practices.
14	World Water Day celebration under Civil Engineering Association	Mar-23	SDG 6	Encouraged awareness on sustainable water usage and resource protection.

SDGs addressed in Research projects

Sl No.	Title of Research Work / Study	Name of Students	Principal Investigator (PI) Name	Name of the Funding agency	SDG Addressed	Academic Year
1	Geochemical distribution and risk assessment of heavy metals in urban water body	1. Mr. Akshay Ajith 2. Ms. Blessy Grace 3. Ms. Christeena Mariya Paul 4. Mr. Geo Antony	Dr. Lakshmi Priya	CERD - Innovative Student project	SDG 6 – Clean Water and Sanitation SDG 14 – Life Below Water	2023-2024