SELF STUDY REPORT

FOR

2nd CYCLE OF ACCREDITATION

THIAGARAJAR COLLEGE OF ENGINEERING

PRINCIPAL THIAGARAJAR COLLEGE OF ENGINEERING
625015
www.tce.edu

Submitted To

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

BANGALORE

March 2024

1. EXECUTIVE SUMMARY

1.1 INTRODUCTION

Thiagarajar College of Engineering (TCE) is as a Government Aided Autonomous Institution, established in 1957 by the philanthropist Late Karumuttu Thiagarajan Chettiar. TCE is affiliated to Anna University, Chennai, and approved by AICTE. TCE offers a wide array of Undergraduate, Postgraduate and Ph.D. Programs across various disciplines of Engineering, Architecture and Science. The campus is set within a serene and eco-friendly environment surrounded by dense vegetation and best infrastructure facilities.

Each Department is dedicated to a specific theme, fostering synergy between faculty and students in academic and research endeavours. TCE has consistently embraced reforms and upgrades in its Teaching-Learning processes. Noteworthy initiatives include the implementation of a Competency-Based Curriculum and Outcome-Based Education. Since 2018, TCE has adopted the Conceive Design Implement Operate (CDIO) framework, shaping curriculum design, pedagogical methods, and assessment techniques, with adequate hands-on training to students. The institution has also launched Massive Open Online Courses in 2021. TCE introduced the Thiagarajar Research Fellowship (TRF) scheme for Ph.D. research scholars, furthering its commitment to academic excellence and research innovation.

The college maintains industry collaborations with leading global organizations. These collaborations have resulted in the establishment of state-of-the-art laboratories, industry-oriented curriculum design, collaborative projects, professional training programs, student internships, and placements. For instance, Subject Matter Experts from TVS Motors have collaborated with TCE faculty to co-create the curriculum in addition to the establishment of T S Srinivasan Centre for Automotive Research (TSSCAR).

TCE's active participation in the Technical Education Quality Improvement Programme (TEQIP) under the National Project Implementation Unit (NPIU) of the MHRD has led to innovative teaching and learning processes, faculty development programs, industry-supported research activities and good governance initiatives.

TCE is involved in national and international ranking frameworks, showcasing its commitment to quality in education. The institution's programs have been accredited by NBA since 1998, indicating compliance with quality standards in technical education. The programmes offered at institution has garnered numerous accolades, including accreditation by NAAC with a CGPA of 3.47 (out of 4.0) with A+ Grade in Cycle I. Engineering departments have been recognized with the "Best Industry Linked Technical Institutions award" by AICTE and the Confederation of Indian Industries (CII). Faculty members have earned International Certification in Engineering Education by Indo-Universal Collaboration for Engineering Education (IUCEE), Cambridge International certification and Wipro Mission 10x. Dr. R. Vasudevan, Professor, Chemistry Department, received "Padma Shri" for his pioneering work on plastic roads. TCE students have actively participated and succeeded in events like the Smart India Hackathon (SIH), showcasing their talent and problem-solving abilities.

Vision

To provide 'World Class Quality Technical Education with Strong Ethical Values'.

Mission

We at Thiagarajar College of Engineering strive continuously to

- Achieve academic excellence in Science, Engineering and Technology through dedication to duty, commitment to research, innovation in learning and faith in human values.
- Enable the students to develop into outstanding professionals with high ethical standards capable of creating, developing and managing global engineering enterprises.
- Fulfil expectations of the society and industry by equipping students with state of art technology resources for developing sustainable solutions.
- Achieve these through team efforts making Thiagarajar College of Engineering, the socially diligent trend setter in technical education.

1.2 Strength, Weakness, Opportunity and Challenges(SWOC)

Institutional Strength

Institutional Strength:

- 66 years old institute with philanthropic management
- Contribution and Support of Alumni in the development of the Institution
- Adoption of Conceive Design Implement Operate (CDIO) framework for the effective implementation of Outcome Based Education (OBE)
- Establishment of T S Srinivasan Centre for Automotive Research (TSSCAR).
- Financial Support for promotion of research.
- Spacious and Green Infrastructure
- Programme Accreditation by National Board of Accreditation (NBA) since 1998
- Technology Based Incubation Centre

Institutional Weakness

Institutional Weaknes:

- Lesser enrolment in postgraduate programmes
- Lesser involvement for partipatiom in sports and cultural by students, compared to technical activities
- Communication Skill by students from rural background
- Lack of willingness of students in campus placement in the programmes like Civil Engineering and Architecure programmes

Institutional Opportunity

Institution Opprotunities:

- Linking Curriculum with International online courses

- New Multi-disciplinary programmes
- Upgradation of Laboratories in new technologies
- Placement opprotunities in core companies
- Establishment of Centre for Excellence in a multidisciplinary domain
- Collaborative research with industries and R&D organizations
- Participation in International Ranking
- Accreditation for Laboratories
- Collaboration with reputed international institutions and subject experts
- Professional counseling to the needy students

Institutional Challenge

Challenges

- Facilities for product development
- Limitation in increasing the fee as per the Government policy
- Faculty migration
- Involvement of academic peers in research activities

1.3 CRITERIA WISE SUMMARY

Curricular Aspects

Curricular Aspects:

Academic process at Thiagarajar College of Engineering (TCE) encompasses curriculum development, content delivery and assessment. Enhancement of curriculum to address the industrial and societal aspects based on the state of art technology is always the need of the hour.

Curriculum development process at TCE is focused on the following:

1. Higher Order Cognitive skills
2. Enhancing personal and interpersonal skills
3. Promoting Problem Based learning and Design thinking experience.
4. Promoting Interdisciplinary learning
5. Effective implementation of Outcome Based Education (OBE) in Conceive-Design-Implement-Operate (CDIO) framework with standardization of procedures for assessment of Programme Outcomes (PO), Programme Specific Outcomes (PSO) and Course Outcomes (CO).

The curriculum design process is as follows:

Inputs:

• CDIO Syllabus 2.0

• Guidelines of Regulatory Authorities

• Professional Societies Guidelines on Curriculum Design

• Washington Accord Graduate Attributes/Programme Outcome

• Credit distributions at higher learning institutions

• Feedback Report on existing Curriculum by Students, Faculty members, Employers, Alumni

Process

- Development of Institution's Regulation of Undergraduate Programme by Dean (Academic Process) covering the following
- Minimum Number of Credits to be earned, Credit Distribution, Policies on
- Assessment, Internship, Community Projects, Industry Supported courses

- Design of Specialized Courses on CDIO by CDIO Core Committee Members

- Preparation of 'Scheduling of Courses' at a program level, covering the all the four sections of the CDIO Syllabus
- Identification of the courses under each category of credit distribution and its type of implementation. The type includes theory, practical, Practice dominated Practical, Theory Dominated Practice course, Project.
- Review of 'Scheduling of Courses' by CDIO Core committee and incorporation of suggestions by the core committee

- Course Design as per the Course as per the Course Design Template by Core Committee

- The courses are designed by faculty members in a relevant Special Interest Group(SIG)
- Review of Scheduling of Courses and detailed syllabus for each course at Board of Studies Meeting and incorporation of suggestions by the members.
- Review of Curriculum and Syllabus of the engineering programs at Academic Council Meetings and Approval is given for implementation after the incorporation of suggestions by the members

Output

• Regulations for Programmes offered at the institute

• TCE- CDIO curriculum

Teaching-learning and Evaluation

Teaching-learning and Evaluation

The academic process of teaching and learning is ensured by the academic calendar. The academic processes are reflected in the continuous schemes and terminal evaluation methodologies. Each semester normally consists of 90 working days. In any contingent situation, the number of working days per semester will not be less than 65 days. Teaching and the commitment of the students to learn are taken extremely serious but there is often a healthy relationship exist between the teacher and students. Though the class attendance is mandatory for the students, they are given enough opportunities to work independently and develop an in-depth knowledge of their subject, critical and analytical thinking through active participation in Special Interest Group (SIG) activities.

The key requirements of these processes include classroom ambience, faculty training, library, laboratory infrastructure, student development activities and support systems. The project works of the students are evaluated by a team comprising of Guide, Head of the Department and an external examiner. The external examiner from higher learning institution/industry is appointed by the Controller of Examinations of the College from the panel of the examiners suggested by the Head of the Department. The College has better

Laboratory infrastructure to provide hands-on experience to some courses, certification courses and practical courses. The College has main library with adequate books/journals, online access for e-resources through internet and mobile application.

The Heads of each Department attaches about 20-25 students to a faculty who shall function as Tutor for those students throughout their period of study. Class committee meetings are scheduled and conducted by the chair person for each class; feedback from student representatives is documented and actions are taken.

Controller of Examinations office team publishes declares the result as per scheduled time. The question papers and the evaluated answer scripted are audited by the external audit team

Research, Innovations and Extension

Research, Innovations and Extension

Research, Innovations, and Extension are integral components of Thiagarajar College of Engineering's (TCE) ethos, focusing on advancing Engineering, Technology, and Sciences.

Research: TCE emphasizes Research & Development (R&D) through a dedicated Research Council, which oversees the institution's R&D activities. A comprehensive research policy has been formulated and endorsed by the council, covering academic research, sponsored research, and the promotion of research endeavors. The institution fosters various programs through academic and sponsored research funded by national organizations

and industry partners. A robust research culture is cultivated among faculty and students through Special Interest Groups (SIG) and Department association activities, leading to academic, sponsored, and industry-driven research across all departments. This research effort culminates in journal publications, establishment of laboratories, and filing of patents.

Innovations: Each department's SIG identifies industries relevant to their domain, facilitating the introduction of new one-credit courses and internships during the 8th semester for students. Furthermore, alumni employed in various industries engage with students through mentoring programs, motivational talks, and seminars, enriching their learning experience and fostering innovation.

Extension Activities: TCE is committed to serving communities, with a focus on neighboring villages and urban slums in Madurai. These communities are identified through exploratory visits by faculty members and students, formally visited by the National Service Scheme (NSS) coordinators and students. Through interactions with community leaders and elders, their needs are identified and translated into technology-based initiatives. The NSS team has been actively involved in areas such as GIS, energy auditing, water management, mason training, sanitation, and computer literacy in villages like Villachery, Thonukal, and Sambakulam. The documentation of these initiatives is shared with Panchayat leaders and, in some cases, successfully implemented, with financial and administrative support from the college.

Consultancy: TCE offers consultancy services, allowing faculty and students to undertake industry assignments such as survey reports, project development, testing, and validation, further enhancing their practical skills and industry relevance.

Infrastructure and Learning Resources

1. Classroom Facilities: All classrooms at Thiagarajar College of Engineering (TCE) are equipped with ICT-enabled teaching and learning resources. This integration of technology enhances the educational experience for both students and faculty, facilitating interactive and engaging sessions.

2. Laboratory Setup: Some laboratories within the campus have been established with support from industry partners, following Memorandums of Understanding (MoUs) signed between the college and various industries. This collaboration ensures that students have access to state-of-the-art equipment and facilities, providing them with practical learning experiences aligned with industry standards.

3. Surveillance System: TCE has implemented a comprehensive surveillance camera facility across the campus to enhance safety and security for all stakeholders. This system ensures a secure environment conducive to learning and academic pursuits.

4. Library Resources: The college library offers extensive resources, including online journal access and e-resources, to students, faculty, and research scholars. These resources support academic projects, Special Interest Group (SIG) activities, research endeavors, as well as sponsored and consultancy projects, enriching the learning and research experience for the entire academic community.

5. Data Center: TCE has established a modern data center to consolidate all application servers, database servers, and computer clusters into a single facility. This consolidation streamlines maintenance and provisioning processes, ensuring seamless access to servers and applications for users throughout the campus. The data center also provides internet facilities across the campus in collaboration with BSNL (Bharat Sanchar

Nigam Limited) and NKN (National Knowledge Network). Equipped with a 24x7 cooling system, smoke detectors, fire extinguishers, surveillance cameras, and door access control, the data center maintains a secure and reliable infrastructure to support the college's technological requirements.

Student Support and Progression

Students' Engagement in Co-curricular Activities:

The students at Thiagarajar College of Engineering (TCE) are actively involved in organizing technical events aimed at sharing information on focused themes with students from other colleges. These events serve as platforms for practical training in managerial skills and competencies. Additionally, technical competitions and project contests are organized through professional society student chapters like ACM, IEEE, ISTE, and IE, benefiting junior students through the mentorship of senior students.

Furthermore, students are selected as ambassadors for prestigious companies such as Google, Microsoft, and CTS, showcasing their talent and winning numerous prizes in technical contests like the Ultratech Technical Quiz and IEEE Xtreme Programming Contest. Placement training programs, including soft skill training by corporate/training sources, aptitude training, and placement training by senior students and alumni, are also conducted to prepare students for career opportunities.

Special Interest Group (SIG) Activities:

SIG activities foster asynchronous learning among students, providing a platform for research scholars and postgraduate students to guide undergraduate students in various domains, allowing them to acquire knowledge beyond the curriculum. This involvement in sponsored research projects supervised by faculty members enables students to engage in experiential learning. For instance, the establishment of Thiagarajar Advanced Research Center (TARC) with high-end technological laboratories facilitates academic and sponsored research conducted by faculty members and enthusiastic undergraduate/postgraduate students.

Moreover, Innovation Clubs initiated by students aim to participate in national and international contests regularly, promoting innovation and creativity among students. SIG activities also encourage students to present papers at conferences and journals, providing them with opportunities to showcase their research and academic achievements on a broader platform.

Governance, Leadership and Management

Governance, Leadership, and Management:

Thiagarajar College of Engineering (TCE) has instituted a robust Quality Management System since 2004, aligning with its vision for delivering quality education across teaching and learning, research and development, industry interaction, and student activities.

Quality Policy: The college's Quality Policy emphasizes a commitment to producing quality professionals to meet evolving industrial and societal needs through innovative teaching, applied research, industry interaction, and a strong foundation in human values. The college strives for continual improvement across all its activities.

Accreditations and Certifications: All undergraduate and postgraduate programs undergo accreditation by the National Board of Accreditation (NBA) to ensure the sustained quality of education. Additionally, the college has obtained ISO 9001:2008 certification for various processes, further demonstrating its commitment to quality.

Strategic Planning: The college conducts strategic planning on both short and long-term bases, focusing on infrastructure development, resource allocation, differentiation from competitors, introduction of new courses, and identifying business prospects. Strategic objectives are mapped to ISO processes, and measurement systems are established for each process area, including metrics, targets, and monitoring frequencies.

Financial Management: The senior management team periodically tracks budget and financial measurements. Ethical values, as envisioned by the college's founder, are upheld in the management seat allocation process, where meritorious and economically deserving candidates are granted seats without any capitation fee. Additionally, economically disadvantaged students with excellent academic records receive annual scholarships from both the management and alumni.

Value Systems: The college and hostel uphold certain value systems, such as serving only vegetarian food in the hostel for the past five decades. These practices are appreciated by parents and alumni, reflecting the institution's commitment to its ethical and value-based approach to education and management.

Institutional Values and Best Practices

Institutional Distinctiveness: Implementing CDIO Curriculum

Thiagarajar College of Engineering (TCE) stands out for its implementation of the Conceive Design, Implement, and Operate (CDIO) Curriculum, aimed at preparing graduate engineers to excel in modern team-based environments by conceiving, designing, implementing, and operating complex value-added engineering systems.

Objectives of CDIO Curriculum: The primary objective of the CDIO curriculum is to equip graduate engineers with the skills to navigate complex engineering challenges. While the undergraduate program curriculum is designed based on the Outcome-Based Education (OBE) framework, there has been a historical emphasis on cognitive aspects over affective and psychomotor skills. This has led to a gap where technically proficient graduates lack practical engineering abilities required in real-world scenarios.

Introduction of CDIO Curriculum: To bridge this gap and meet the global demands of professional engineers, TCE introduced the CDIO curriculum. This approach redefines engineering education by intertwining CDIO activities like projects, industry internships, and active learning in theory and practical courses. Modern laboratories serve as workspaces to facilitate hands-on learning experiences.

Challenges and Implementation: TCE faced challenges in implementing the CDIO framework for the first time in India. However, through interactions with faculty members from various universities at CDIO international conferences and Asian regional meetings, they gained insights and confidence. Strong support from the administration and faculty commitment enabled TCE to adapt the CDIO syllabus for all seven undergraduate engineering programs from the academic year 2018-19.

CDIO Curriculum Courses: The CDIO curriculum at TCE includes courses such as Engineering Exploration,

Lateral Thinking, Design Thinking, Project Management, System Thinking, Engineering Design Project, Capstone Design Project, and Major Project. Course outcomes are articulated to encompass knowledge, skills, and attitudes essential for holistic learning and professional development.

2. PROFILE

2.1 BASIC INFORMATION

Name and Address of the College	
Name	THIAGARAJAR COLLEGE OF ENGINEERING
Address	Principal Thiagarajar College of Engineering
City	Madurai
State	Tamil Nadu
Pin	625015
Website	www.tce.edu

Contacts for Communication					
Designation	**Name**	**Telephone with STD Code**	**Mobile**	**Fax**	**Email**
Principal(in-charge)	M Palaninatha Raja	0452-2482430	9894094155	0452-2483427	principal@tce.edu
IQAC / CIQA coordinator	S J Thiruvengadam	0452-2482240	9865079402	0452-2483427	deanacad@tce.edu

Status of the Institution	
Institution Status	Private , Grant-in-aid and Self Financing

Type of Institution	
By Gender	Co-education
By Shift	Regular

Recognized Minority institution	
If it is a recognized minroity institution	No

Establishment Details	
Date of Establishment, Prior to the Grant of 'Autonomy'	21-11-1957

Date of grant of 'Autonomy' to the College by UGC	01-06-1987

University to which the college is affiliated		
State	**University name**	**Document**
Tamil Nadu	Anna University	View Document

Details of UGC recognition		
Under Section	**Date**	**View Document**
2f of UGC	25-11-2010	View Document
12B of UGC	25-11-2010	View Document

Details of recognition/approval by stationary/regulatory bodies like AICTE,NCTE,MCI,DCI,PCI,RCI etc(other than UGC)				
Statutory Regulatory Authority	**Recognition/Approval details Institution/Department programme**	**Day,Month and year(dd-mm-yyyy)**	**Validity in months**	**Remarks**
AICTE	View Document	10-06-2023	12	
COA	View Document	30-06-2023	12	
AICTE	View Document	10-06-2023	12	
COA	View Document	30-06-2023	12	
COA	View Document	30-06-2023	12	
AICTE	View Document	10-06-2023	12	
COA	View Document	30-06-2023	12	

Recognitions	
Is the College recognized by UGC as a College with Potential for Excellence(CPE)?	No
Is the College recognized for its performance by any other governmental agency?	No

Location and Area of Campus				
Campus Type	**Address**	**Location***	**Campus Area in Acres**	**Built up Area in sq.mts.**
Main campus area	Principal Thiagarajar College of Engineering	Semi-urban	136.24	79838.88

2.2 ACADEMIC INFORMATION

Details of Programmes Offered by the College (Give Data for Current Academic year)						
Programme Level	**Name of Programme/Course**	**Duration in Months**	**Entry Qualification**	**Medium of Instruction**	**Sanctioned Strength**	**No.of Students Admitted**
UG	BE,Civil Engineering,Civil Engineering	48	HSc	English	120	120
UG	BE,Mechanical Engineering,Mechanical Engineering	48	HSc	English	120	120
UG	BE,Electrical And Electronics Engineering,Electrical and Electronics Engineering	48	HSc	English	120	120
UG	BE,Electronics And Communication Engineering,Electronics and Communication Engineering	48	HSc	English	180	180
UG	BE,Computer Science And Engineering,Computer Science and Engineering	48	HSc	English	180	180

UG	BTech,Information Technology,Information Technology	48	HSc	English	180	180
UG	BE,Mechatronics,Mechatronics	48	HSc	English	60	60
UG	BArch,Architecture,Architecture	60	HSc	English	80	80
UG	BTech,Computer Applications,Computer Science and Business Systems	48	HSc	English	60	60
PG	ME,Civil Engineering,Construction Engineering and Management	24	BE	English	18	18
PG	ME,Civil Engineering,Structural Engineering	24	BE	English	18	18
PG	ME,Electrical And Electronics Engineering,Power Systems	24	BE	English	18	0
PG	ME,Electronics And Communication Engineering,Communication Systems	24	BE	English	18	18
PG	ME,Computer Science And Enginee	24	BE	English	18	18

	ring,Computer Science and Engineering					
PG	MArch,Architecture,Architecture	24	BArch	English	20	0
PG	MCA,Computer Applications,Master of Computer Applications	24	UG	English	30	30
PG	MSc,Applied Mathematics And Computational Science,Data Science	60	HSc	English	40	40
Doctoral (Ph.D)	PhD or DPhil ,Research,	36	PG	English	20	20

Position Details of Faculty & Staff in the College

Teaching Faculty												
	Professor				Associate Professor				Assistant Professor			
	Male	Female	Others	Total	Male	Female	Others	Total	Male	Female	Others	Total
Sanctioned by the UGC /University State Government	0				0				0			
Recruited	0	0	0	0	0	0	0	0	0	0	0	0
Yet to Recruit	0				0				0			
Sanctioned by the Management/Society or Other Authorized Bodies	65				48				130			
Recruited	42	23	0	65	30	18	0	48	69	61	0	130
Yet to Recruit	0				0				0			

Non-Teaching Staff				
	Male	**Female**	**Others**	**Total**
Sanctioned by the UGC /University State Government				0
Recruited	0	0	0	0
Yet to Recruit				0
Sanctioned by the Management/Society or Other Authorized Bodies				191
Recruited	158	33	0	191
Yet to Recruit				0

Technical Staff				
	Male	**Female**	**Others**	**Total**
Sanctioned by the UGC /University State Government				191
Recruited	158	33	0	191
Yet to Recruit				0
Sanctioned by the Management/Society or Other Authorized Bodies				0
Recruited	0	0	0	0
Yet to Recruit				0

Qualification Details of the Teaching Staff

Permanent Teachers										
Highest Qualification	**Professor**			**Associate Professor**			**Assistant Professor**			
	Male	Female	Others	Male	Female	Others	Male	Female	Others	Total
D.sc/D.Litt/LLD/DM/MCH	0	0	0	0	0	0	0	0	0	0
Ph.D.	41	23	0	27	15	0	31	19	0	156
M.Phil.	0	0	0	0	0	0	0	0	0	0
PG	1	0	0	3	3	0	38	42	0	87
UG	0	0	0	0	0	0	0	0	0	0

Temporary Teachers										
Highest Qualification	**Professor**			**Associate Professor**			**Assistant Professor**			
	Male	Female	Others	Male	Female	Others	Male	Female	Others	Total
D.sc/D.Litt/LLD/DM/MCH	0	0	0	0	0	0	0	0	0	0
Ph.D.	0	0	0	0	0	0	0	0	0	0
M.Phil.	0	0	0	0	0	0	0	0	0	0
PG	0	0	0	0	0	0	0	0	0	0
UG	0	0	0	0	0	0	0	0	0	0

Part Time Teachers										
Highest Qualification	**Professor**			**Associate Professor**			**Assistant Professor**			
	Male	Female	Others	Male	Female	Others	Male	Female	Others	Total
D.sc/D.Litt/ LLD/DM/MCH	0	0	0	0	0	0	0	0	0	0
Ph.D.	0	0	0	0	0	0	0	0	0	0
M.Phil.	0	0	0	0	0	0	0	0	0	0
PG	0	0	0	0	0	0	0	0	0	0
UG	0	0	0	0	0	0	0	0	0	0

Details of Visting/Guest Faculties				
Number of Visiting/Guest Faculty engaged with the college?	**Male**	**Female**	**Others**	**Total**
	0	0	0	0

Provide the Following Details of Students Enrolled in the College During the Current Academic Year

Programme		**From the State Where College is Located**	**From Other States of India**	**NRI Students**	**Foreign Students**	**Total**
UG	Male	691	0	0	0	691
	Female	542	0	0	0	542
	Others	0	0	0	0	0
PG	Male	57	0	0	0	57
	Female	60	0	0	0	60
	Others	0	0	0	0	0
Doctoral (Ph.D)	Male	0	0	0	0	0
	Female	0	0	0	0	0
	Others	0	0	0	0	0

Provide the Following Details of Students admitted to the College During the last four Academic Years					
Category		**Year 1**	**Year 2**	**Year 3**	**Year 4**
SC	Male	86	59	73	79
	Female	61	46	33	35
	Others	0	0	0	0
ST	Male	3	5	8	3
	Female	2	0	3	2
	Others	0	0	0	0
OBC	Male	496	503	506	470
	Female	419	399	332	357
	Others	0	0	0	0
General	Male	24	57	55	77
	Female	18	28	36	33
	Others	0	0	0	0
Others	Male	0	0	0	0
	Female	0	0	0	0
	Others	0	0	0	0
Total		1109	1097	1046	1056

2.3 EVALUATIVE REPORT OF THE DEPARTMENTS

Department Name	Upload Report
Applied Mathematics And Computational Science	View Document
Architecture	View Document
Civil Engineering	View Document
Computer Applications	View Document
Computer Science And Engineering	View Document
Electrical And Electronics Engineering	View Document
Electronics And Communication Engineering	View Document
Information Technology	View Document
Mechanical Engineering	View Document
Mechatronics	View Document
Research	View Document

Institutional preparedness for NEP

1. Multidisciplinary/interdisciplinary:	Institution offers flexible and innovative curricula that includes credit-based courses and projects in the areas of community engagement and service, environmental education, and value-based towards the attainment of a holistic and multidisciplinary education in the Conceive-Design-Implement-Operate framework. The institute promotes interdisciplinary/ multidisciplinary learning among undergraduate students in the following ways: 1. Interdisciplinary projects: Interdisciplinary projects are encouraged in the courses on Design Thinking, System Thinking, Project Management and Engineering Design Project. Faculty Mentors are assigned across the departments to facilitate project completion. This is led to hackathons by Government and multinational companies 2. Interdisciplinary electives (3 to 6 credits): General electives are courses offered by different departments. These courses do not have any prerequisites and could be chosen as electives by students of any programme. Students should opt for the courses offered from other departments during their course of study. 3. Integration of Humanities and Science with STEM: Courses are offered by Science departments in the state-of-art technologies like nano technology,

	quantum physics, Graph Theory, Machine Learning to the students of engineering programme. Students should opt for these courses during their course of study. Further, the final semester projects are jointly guided by faculty members from Science and Engineering Departments. 4. TCE Massive Open Online Courses: A pool of 11 courses on the state-of-the-art technologies like Data Visualization, Cloud Computing, Predictive Analytics, Blockchain Technologies are offered in online mode (mooc.tce.edu). These courses are open to the students of all disciplines to enhance interdisciplinary learning. Further, demanding courses like Smart Grid, Placement preparation for DBMS and Data Structures are under development. 5. Usage of NPTEL, coursera and edX: Collaboration with coursera, NPTEL and edx enabled the students and faculty members to learn and earn certificates with reimbursement of fees for students and staff who perform well. This increases the interdisciplinary learning opportunities to the students and continuous knowledge update to the faculty
2. Academic bank of credits (ABC):	The college has registered in the portal for Academic Bank of Credits. The necessary activities and the processes are followed as per the guidelines from the affiliating University, Anna University Chennai in the implementation of Academic Bank of Credits
3. Skill development:	Courses under Conceive Design Implement and Operate (CDIO) framework: A special stream of courses which includes Engineering Exploration, Design Thinking, Project Management, System Thinking, Engineering design Project are introduced in undergraduate curriculum in order to promote Conceive-Design-Implement-Operate skills among students. Mini projects in Practical / Theory Cum Practical Courses: Mini projects are encouraged in practical and theory cum practical courses. Problem statements from AICTE Smart India Hackathon are encouraged for building solutions through mini projects. The Institute organizes a series of events related to socially relevant activities mapped with United Nations Sustainable Development Goals (UN-SDG). Encouraging student participation in UN-SDG projects provide them with an experiential learning to understand the societal needs Industry Supported Courses: To promote exposure on industrial practices, industry supported courses are offered

during every semester. Experts from industries handle the courses beyond regular academic hours. Joint Teaching and Adjunct Faculty Joint teaching programs with academic experts from higher learning institutions have been conducted in both offline and online mode to enable the students to interact with the professors of higher learning institutions like IIT/IISc/IMS/NIT. This created opportunities of internship with the professors. Industry experts serve as adjunct faculty to specific courses that demands industry exposure and the experts help in other activities like student internship, student project guidance and review. Course on Research Practice: A course on research practice has been introduced to promote creativity and critical thinking skills. A student with minimum CGPA of 8.00 without history of arrear can register for the course on 'Research Practice'. The outcome of the course will be a publication in SCI/ SCI-expanded/ SCOPUS indexed Journal/ conference in Science and Technology. Number of Credits for this course is 3.A group of maximum two (2) students can register for this course at the beginning of the fifth semester of the programme. Product Development Skill : TCE Association and clubs organize In-house and Industry supported Hackathons at regular intervals. T S Srinivasan Centre for Automotive Research (TSSCAR) and CDIO maker space have been established to promote product development skills. Association with Higher learning institutes like IITM Build club has been established for product development to meet the industrial and societal needs. VLCI is a part of Visionary Leaders for Manufacturing (VLFM) Programme launched in 2006 is a path breaking Programme jointly associated by: Confederation of Indian Industry (CII), National Manufacturing Competitiveness Council (NMCC) Govt. of India, IIT-Kanpur, IITM-Chennai and Indian Institute of Management, Kolkata. The Objective of this programme is "Creating Next Generation of Manufacturing Change Leaders" by transforming the Engineering graduates in to "Role Ready Engineers". This Programme consists of six modules where students are given with skill oriented training on observation, problem solving, presentation, communication, Team work, Time Management and leadership. Green Skill development programmes are organized by Environmental Information System

	(ENVIS) Centre of our institution
4. Appropriate integration of Indian Knowledge system (teaching in Indian Language, culture, using online course):	The following courses have been included in the undergraduate curriculum in order to expose the learners towards the Indian culture, tradition and heritage Essence of Indian Knowledge Constitution of India Heritage of Tamils Tamils and Technology Resource persons with specialization in arts from neighbouring institutes were invited for the course offering. A Study on Keezhadi Templates, one of the archaeological excavation sites, was carried out by the Department of Architecture. A DST sponsored project was carried out by Department of Electronics and Communication Engineering on the Sculptures in Temples. Spoken Hindi classes were conducted for supporting staff and students.
5. Focus on Outcome based education (OBE):	Our institution was granted autonomous status in the year 1987 by the University Grants Commission (UGC), New Delhi. This has given us the freedom to design and develop an innovative curriculum, content delivery and assessment methods in alignment with the guidelines of AICTE and Affiliating University. As a major initiative in the teaching and learning process, a competencybased curriculum, Blooms taxonomy based course learning outcomes assessment methodologies were introduced in 2008. As Outcome-Based Education (OBE) has been made mandatory for accrediting Engineering Programmes in India, the curriculum was suitably modified in the year 2014. Although the undergraduate program curriculum is designed based on the OBE framework, the hands-on practices, system/design thinking leading to product development, and interpersonal skills have not been much emphasized in the curriculum. Cognitive aspects are addressed to a greater extent than affective and psychomotor. In due course of time, due to rapid advancement in science and technology, engineering education drifted towards the teaching of engineering science than engineering practice. As a result, industries in recent years have found that graduating students, while technically adept, lack many abilities required in real-world engineering situations. To address the increasing gap between scientific and practical engineering demand and to meet the global requirements of professional Engineers, the CDIO curriculum was introduced for effective implementation of OBE. After attending the 11th

	International CDIO conference at Chengdu, China, we realized thata CDIO based curriculum is organized around the disciplines, but with CDIO activities are interwoven. The CDIO activities include projects, internships in industry, and active learning in theory and practical courses in which modern state-of-art laboratories are considered as workspaces. CDIO framework has been implemented in many universities all over the world as it maps with the Washington Accord graduate attributes. It motivated us to introduce Engineering Design and Capstone courses in our OBE curriculum as an experimental basis to emphasize hands-on practices, system/design thinking, and interpersonal skills. These courses helped us to improve the attainment of graduate attributes/program outcomes and student engagement. However, we felt that the transition from the existing model to the CDIO framework would be more challenging. In the interaction with faculty members from various Universities at CDIO international conferences and Asian Regional meetings, we understood the challenges in implementing the CDIO framework first time in a country. This has given us the confidence to implement the CDIO curriculum first time in India, as we had strong support from the administration and commitment from the faculty members. With this motivation, we adapted the CDIO based OBE syllabus for all seven undergraduate engineering programs at our institution from the academic year 2018-19. The courses are, namely, Engineering Exploration, Lateral Thinking, Design Thinking, Project Management, System Thinking, Engineering Design Project, Capstone Design Project, and Major Project. The course outcomes of all the courses in the curriculum are articulated by combining the knowledge, skill, and attitude domains of learning.
6. Distance education/online education:	TCE Massive Open Online Courses: As a part of continuous improvement in Teaching Learning, the institute has launched 11 courses in online mode to enhance skill development on the state of the art technologies and to promote interdisciplinary learning (mooc.tce.edu). Academic credits under programme specific electives/ programme specific electives for expanded scope are awarded on successful completion. Applied Data Science with Python Applied Statistics with Python Essentials of

	Blockchain Data Visualization Industrial Automation Android Mobile Application Development Modern Testing Practices: A Primer to Certification Predictive Analytics with regression: Simplified Discrete Time Signal Processing Theory of Computation: TOC Made Easy FPGA based Digital System Design Swayam – NPTEL: The institute offers a maximum of 6 academic credits for the successful completion of online courses in Swayam/ NPTEL platform. Students may be permitted to register for online courses (which are provided with certificate after evaluation of the performance), during fourth to seventh semester of his/her study. On successful completion of the course, he/she has to submit the copy of the certificate to the Head of the Department for exemption from registering for an elective course. Based on the recommendation by the team of faculty members nominated by the Head of the Department, the student will be awarded grade and credits in Programme Specific Elective or Programme Specific Elective for Expanded Scope sub-categories. The recommendation will be sent to The Controller of Examinations after the approval by the Head of the Department. Collaboration with coursera/edX: Collaboration of TCE with other online platforms like edX/ coursera provides

Institutional Initiatives for Electoral Literacy

1. Whether Electoral Literacy Club (ELC) has been set up in the College?	Yes, Electoral Literacy Club (ELC) has been set up in the college.
2. Whether students' co-ordinator and co-ordinating faculty members are appointed by the College and whether the ELCs are functional? Whether the ELCs are representative in character?	Yes. Students' coordinator and coordinating faculty members are appointed by the College. ELC is functional. The Institutional Electoral Literacy Club (ELC) is constituted with the following members. 1. Dr. R. Velkennedy, Dean (Extra-curricular Activities) 2. Dr. S. Chandran, Dean (Students) 3. Dr. S. Siva Ilango, NSS Programme Officer 4. Ms. M. Aruna, NSS Programme Officer 5. Mr.L.N. Vijayaraj 6. Mrs. R Dhanam 7. Student Representatives
3. What innovative programmes and initiatives undertaken by the ELCs? These may include voluntary contribution by the students in electoral processes-participation in voter registration of	Innovative Programmes and Initiatives undertaken by the ELCs. The college faculty members are encouraged to carry out election duties during the Assembly, parliamentary and Corporation elections.

students and communities where they come from, assisting district election administration in conduct of poll, voter awareness campaigns, promotion of ethical voting, enhancing participation of the under privileged sections of society especially transgender, commercial sex workers, disabled persons, senior citizens, etc.	Voter Awareness campaigns are conducted by Dr. S Siva Ilango and volunteers from NSS at the villages adopted under Unnat Bharath Abhiyan schemes Virtual voting teaching are conducted by the ELC members. .
4. Any socially relevant projects/initiatives taken by College in electoral related issues especially research projects, surveys, awareness drives, creating content, publications highlighting their contribution to advancing democratic values and participation in electoral processes, etc.	Socially relevant projects/initiatives taken by College in electoral related issues: A research project on Blockchain Based e-Voting System has been carried out by the second year students in the Department of Applied Mathematics and Computational Science. The primary objective of this project is to investigate how blockchain technology can revolutionize electoral processes by providing a secure, transparent, and inclusive framework. Key elements include the inherent security features of blockchain, which protect against hacking and manipulation, and its transparent nature, allowing voters to independently verify the accuracy of their votes. In this project, challenges such as scalability, privacy concerns, and regulatory frameworks associated with implementing blockchain in voting systems are addressed. The blockchain is said to be an emerging, decentralized, and distributed technology that promises to enhance different aspects of many industries. Expanding e-voting into blockchain technology could be the solution to eliminate the present concerns in e-voting system. This paper explores the integration of blockchain technology into voting systems, with a particular focus on its potential to enhance electronic voting (e-voting).
5. Extent of students above 18 years who are yet to be enrolled as voters in the electoral roll and efforts by ELCs as well as efforts by the College to institutionalize mechanisms to register eligible students as voters.	Efforts by the College to register eligible students as voters. ELC members explains the students on the importance of enrolling as voter and how to make informed choices using educational resources, presentations and mock voting exercises provided by district election office. Along with encouraging our young voters to cast their ballots, Mera Pehla Vote – Desh Ke Liye campaign aims to foster a competitive yet collaborative environment wherein the youth can envision the future of our nation through various creative competitions. 'First time voters are also encouraged to participate in “Quiz on India’s Democracy” jointly organized by Ministry of Information and Broadcasting & MyGov.

Extended Profile

1 Students

1.1

Number of students on rolls year wise during last five years

2022-23	2021-22	2020-21	2019-20	2018-19
4436	4320	4314	4375	4465

File Description	Document
Provide Links for any other relevant document	View Document
Institutional data in the prescribed format (data	View Document

1.2

Number of final year outgoing students year wise during last five years

2022-23	2021-22	2020-21	2019-20	2018-19
1084	1114	1183	1180	1222

File Description	Document
Provide Links for any other relevant document	View Document
Institutional data in the prescribed format (data	View Document

2 Teachers

2.1

Number of full time teachers year wise during the last five years

2022-23	2021-22	2020-21	2019-20	2018-19
231	218	212	229	240

File Description	Document
Provide Links for any other relevant document	View Document
Institutional data in the prescribed format	View Document
Certified list of full time teachers	View Document

2.2

Total number of full time teachers worked/working in the institution (without repeat count) during last five years:

Response: 305

File Description	Document
Provide Links for any other relevant document	View Document
Institutional data in the prescribed format	View Document

3 Institution

3.1

Total expenditure excluding salary year wise during the last five years (INR in lakhs)

2022-23	2021-22	2020-21	2019-20	2018-19
1409.56	653.44	882.45	1440.93	1423.05

File Description	Document
Provide Links for any other relevant document	View Document

4. Quality Indicator Framework(QIF)

Criterion 1 - Curricular Aspects

1.1 Curriculum Design and Development

1.1.1

Curricula developed and implemented have relevance to the local, regional, national, and global developmental needs, which is reflected in the Programme outcomes (POs) and Course Outcomes(COs) of the Programmes offered by the institution

Response:

Introduction:

Thiagarajar College of Engineering (TCE) became an autonomous institution in 1987 with a focus on providing quality education aligned with local, national, regional, and global developmental needs. The institution designs its curricula to reflect diverse requirements, with well-defined Program Outcomes (POs), Programme Specific Outcomes (PSOs), and Course Outcomes (COs) across various programmes.

1. Local Needs: Courses on 'Engineering Exploration', 'Design Thinking' and ' System Thinking' are introduced to study and understand the local needs and provide posisble solutions.

2. Regional Collaboration: TCE collaborates closely with regional industries, research institutions, and government bodies to identify emerging trends and demands, incorporating relevant content into courses to meet regional job market needs.

Curriculum for B.E. Mechanical Engineering and B.E. Electrical and Electronics Engineering Programmes have been designed in collaboration with TVS Motors. Curriculum for B.Tech. Computer Science and Business Systems has been designed in collaboration with Tata Consultancy Services (TCS). Further, the courses on “Heritage of Tamils” and “Tamils and Technology” have also been included in the curriculum.

Further, industry experts are involved as adjunct faculty for selective courses. TCE Curriculum has the provision for offering industry-supported courses on cutting-edge technologies, in each programme.

3. National Alignment: TCE aligns with national policies and initiatives such as NEP 2020, meeting guidelines set by regulatory bodies and emphasizing core national issues like sustainable development and technological innovation. It collaborates with academic forums like Indo-Universal Collaboration for Engineering Education (IUCEE) to offer additional courses specified by NEP 2020.

TCE implements NEP 2020 as per Government Regulations. 19 online courses have been developed on cutting edge technologies that are open for registration for the undergraduate and postgraduate students of our institution. Courses offered by NPTEL-SWAYAM are permitted for credit transfer after an approval procedure followed by the departments.

Further, courses namely “Essence of Indian Knowledge” and "Constitution of India" have been included

in the curriculum.

4. Global Focus: TCE prepares students for the global arena by emphasizing international best practices, cross-cultural competencies, and exposure to cutting-edge technologies through various courses and mini-courses offered by Indo Universal Collbaoration for Engineering Education (IUCEE) with international experts.

CDIO Framework: Undergraduate programs at TCE are designed with the Conceive-Design-Implement-Operate (CDIO) framework, emphasizing engineering fundamentals, hands-on projects, and real-world skills. Various courses like Engineering Exploration, Design thinking, System thinking, lateral thinking and capstone projects have been introduced in this framework. Engineering Science and basic science are promoted with foundation electives offered from Science & Humanities and interdisciplinary courses. This is helpful in the effective implementation of Outcome-Based Education (OBE).

Comprehensive Approach: The institution promotes engineering science and basic science through foundation electives offered from Science & Humanities and interdisciplinary courses, contributing to a holistic approach to curriculum development.

Overall, TCE's comprehensive and forward-thinking approach to curriculum development aligns with its commitment to shaping the future of its students and contributing to broader developmental agendas locally, nationally, regionally, and globally.

File Description	Document
Upload Additional information	View Document
Provide Link for Additional information	View Document

1.1.2

The programmes offered by the institution focus on employability/ entrepreneurship/ skill development and their course syllabi are adequately revised to incorporate contemporary requirements

Response:

In Thiagarajar College of Engineering (TCE), the curriculum is designed based on Outcome-Based Education principles with the CDIO framework, incorporating guidelines from All India Council for Technical Education (AICTE), Anna University, National Board of Accreditation (NBA), requirements of Engineering Projects in Community Services (EPICS), and Professional Societies. TCE’s strategies and initiatives to enhance the employability, entrepreneurship and skill development to its engineering graduates through a comprehensive and industry-aligned curriculum are as follows:

1. Curriculum Design for Employability: TCE focuses on enhancing employability by including courses that contribute to core domain technical excellence, interdisciplinary learning, cutting-edge technologies, interpersonal and intrapersonal skill development. Additionally, courses on entrepreneurial

skills are provided to prepare future entrepreneurs.

Regular Updates to Course Content: The institution regularly updates course content to reflect industry's current needs, ensuring students are well-versed in cutting-edge tools and methodologies. New programmes such as B.Tech. Computer Science and Business Systems and 5-year Integrated M.Sc. Data Science are introduced to cater to employer demands.

Industry Collaboration: TCE bridges the gap between academia and industry by bringing industry experts on campus to teach industry-relevant courses as industry-supported courses and adjunct faculty, exposing students to real-world challenges and potential future employment opportunities.

Cross-disciplinary Courses and Interdisciplinary Learning: The curriculum includes cross-disciplinary courses promoting interdisciplinary learning, fostering a collaborative mindset among students for real-world scenarios.

Online Courses and Foundation Electives: The institution offers online courses designed by internal experts. Elective courses are offered by science and Humanities faculty members to nurture students' interest in basic sciences.

2. Entrepreneurial Mindset: TCE instills an entrepreneurial mindset by incorporating courses on innovation, business fundamentals, and project management, enabling students to create innovative solutions and launch startups. Courses on entrepreneurial skills are also provided for students in the curriculum.

Awareness on Entrepreneurship and property rights is provided with course '**Intellectual Property Rights'**. A course on **'Introduction to Innovation, IP Management & Entrepreneurship**' is offered as a core course for the B.Tech. Computer Science and Business System students.

3. Skills Development: Courses focusing on soft skills such as effective communication, problem-solving, teamwork, leadership, and ethical considerations are integrated into the curriculum through the CDIO framework, workshops, and project-based learning.

Ethics and Social Responsibility: The curriculum includes courses on ethics, sustainability, and social responsibility, encouraging students to consider the broader impact of their work on communities and the environment.

Feedback and Periodical Revision: The curriculum development process is enriched by obtaining feedback from various stakeholders, including students, teachers, alumni, and employers. Periodical revisions are made every six months, approved by the Board of Studies in each department and Academic Council with learned members from prestigious institutions and industries.

Overall, TCE's curriculum development approach aims to produce well-rounded engineering graduates equipped with technical expertise, soft skills, entrepreneurial mindset, and ethical considerations to meet the demands of the ever-evolving industry landscape.

File Description	Document
Upload Additional information	View Document
Provide Link for Additional information	View Document

1.2 Academic Flexibility

1.2.1

Percentage of new courses introduced out of the total number of courses across all programmes offered during the last five years

Response: 36.71

1.2.1.1 **Number of new courses introduced during the last five years:**

Response: 573

1.2.1.2 **Consolidated number of courses offered by the institution across all Programmes (without repeat count) during the last five years :**

Response: 1561

File Description	Document
Subsequent Academic Council meeting extracts endorsing the decision of BOS	View Document
Minutes of Board of Studies meeting clearly specifying the syllabus approval of new courses	View Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

1.3 Curriculum Enrichment

1.3.1

Institution integrates cross-cutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability and other value framework enshrined in Sustainable Development Goals and National Education Policy – 2020 into the Curriculum

Response:

The integration of cross-cutting issues such as professional ethics, gender equality, human values,

environmental sustainability, and social responsibility into the curriculum is crucial for fostering socially conscious individuals and preparing them for active citizenship and successful careers. Thiagarajar College of Engineering (TCE) has taken significant steps to embed courses and activities related to these issues throughout its curriculum. Here's a breakdown of how these issues is addressed:

1. **Professional Ethics**:
    - First-year B.E/B.Tech students undergo a 3-week induction program as guided by All India Council for Technical Education (AICTE), which includes sessions on human values and ethics.
    - Undergraduate students are offered courses on professional communication, technical English, and professional communication to enhance their professional skills.
    - Postgraduate students of Civil Engineering and Integrated M.Sc. Data Science, as well as undergraduate students of Mechanical Engineering, are offered courses like Organizational Behavior and Ethics for Data Science to introduce professional working standards.
    - Courses such as Quality Practices for Mechatronics Engineers and Value Engineering emphasize the ethics of practicing engineering.
2. **Environment and Sustainability**:
    - The CDIO framework supports the incorporation of courses like Design Thinking, Systems Thinking, and Engineering Design Project, where students provide technology-based solutions considering environmental and sustainability factors.
    - Undergraduate students take an audit course on Environmental Science to address environmental issues.
    - Open elective courses like Biology for Engineers provide a different perspective on engineering in terms of the biological environment.
    - Industry-supported courses on Green Construction, Green Data Centre, Six Sigma, and others address contemporary technologies for environmental sustainability.
3. **Gender and Human Values**:
    - Courses such as Management of Human Resources, Safety, and Quality, and Management of Human Resource in Construction integrate the study of human resources into the curriculum.
    - An audit course on Value Education is offered to postgraduate students to emphasize gender and human values.
    - Courses like Essence of Indian Knowledge, Constitution of India, Heritage of Tamils, and Tamils and Technology emphasize Indian culture, human rights, duties, responsibilities, and gender equity.
4. **Activities and Programs**:
    - Participation in NCC/NSS/YRC/Sports is mandatory for undergraduate students and recommended for B.E./B.Tech students.
    - NSS and NCC units are active in volunteering works such as tree planting, mentoring neighboring villages, and blood donations.
    - The Women Development Cell conducts activities related to gender sensitization, women empowerment, and equity.

Overall, TCE integrates cross-cutting issues into its curriculum and various activities to ensure that students are well-equipped with the knowledge and skills necessary for addressing ethical, social, and environmental challenges in their professional careers and as responsible citizens.

File Description	Document
Upload Additional information	View Document
Provide Link for Additional information	View Document

1.3.2

Number of certificate/value added courses/Diploma Programmes offered by the institutions and online courses of MOOCs, SWAYAM/e-PG Pathshala/ NPTEL and other recognized platforms (without repeat count) where the students of the institution have enrolled and successfully completed during the last five years.

Response: 97

File Description	Document
List of students and the attendance sheet for the above mentioned programs	View Document
Institutional programme brochure/notice for Certificate/Value added programs with course modules and outcomes	View Document
Institutional data in the prescribed format (data template)	View Document
Evidence of course completion, like course completion certificate etc	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

1.3.3

Percentage of programmes that have components of field projects / research projects / internships during the last five years.

Response: 100

1.3.3.1 **Total Number of programmes that have components of field projects / research projects / internships (without repeat count) during the last five years**

Response: 25

1.3.3.2 **Total Number of programmes offered (without repeat count) during the last five years**

Response: 25

File Description	Document
Sample Internship completion letter provided by host institutions	View Document
Sample Evaluated project report/field work report submitted by the students	View Document
Provide the relevant information in institutional website as part of public disclosure	View Document
Program and course contents having element of field projects / research projects / internships as approved by BOS	View Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

1.4 Feedback System

1.4.1

Structured feedback for curriculum and its transaction is regularly obtained from stakeholders like Students, Teachers, Employers, Alumni, Academic peers etc., and Feedback processes of the institution may be classified as follows:

Response: A. Feedback collected, analysed, action taken & communicated to the relevant bodies and feedback hosted on the institutional website

File Description	Document
Feedback analysis report submitted to appropriate bodies	View Document
At least 4 filled-in feedback form from different stake holders like Students, Teachers, Employers, Alumni etc.	View Document
Action taken report on the feedback analysis	View Document
Link of institution’s website where comprehensive feedback, its analytics and action taken report are hosted	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

Criterion 2 - Teaching-learning and Evaluation

2.1 Student Enrollment and Profile

2.1.1

Enrolment percentage

Response: 90.6

2.1.1.1 **Number of seats filled year wise during last five years (Only first year admissions to be considered)**

2022-23	2021-22	2020-21	2019-20	2018-19
1104	1093	1044	1041	1097

2.1.1.2 **Number of sanctioned seats year wise during last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
1209	1182	1154	1201	1191

File Description	Document
Provide the relevant information in institutional website as part of public disclosure	View Document
Institutional data in the prescribed format (data template)	View Document
Final admission list as published by the HEI and endorsed by the competent authority	View Document
Document relating to sanction of intake as approved by competent authority	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.1.2

Percentage of seats filled against reserved categories (SC, ST, OBC etc.) as per applicable reservation policy for the first year admission during the last five years

Response: 93.79

2.1.2.1 **Number of actual students admitted from the reserved categories in the first year of the programme year wise during the last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
559	509	509	514	539

2.1.2.2 **Number of seats earmarked for reserved category as per GoI/State Govt. rule year wise during the last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
578	561	555	552	558

File Description	Document
Provide the relevant information in institutional website as part of public disclosure	View Document
Institutional data in the prescribed format (data template)	View Document
Final admission list indicating the category as published by the HEI and endorsed by the competent authority.	View Document
Copy of the letter issued by the State govt. or Central Government Indicating the reserved categories(SC, ST, OBC, Divyangjan, etc.) to be considered as per the state rule (Translated copy in English to be provided as applicable)	View Document
Provide Links for any other relevant document to support the claim (if any	View Document

2.2 Catering to Student Diversity

2.2.1

The institution assesses the learning levels of the students and organises special Programmes to cater to differential learning needs of the student

Response:

The academic performance of the students is a pivotal aspect that is meticulously analyzed at the

department level post the declaration of results in terminal examinations and continuous assessment tests. This scrutiny allows for a comprehensive understanding of the learning curve of each student, categorizing them based on their achievements. . The students who have secured more than 8.0 CGPA are considered as advanced learners and students who have secure less than 50% of the maximum marks in one or more courses are identified as slow learner

Support for Advanced Learners:

Course on Research Practice: Advanced learners, having demonstrated exceptional academic prowess, are invited to enroll in the Course on Research Practice. Here, they are granted the opportunity to delve into research projects under the mentorship of esteemed faculty advisors. The ultimate goal is to produce scholarly works worthy of publication in prestigious journals or presentation at renowned conferences.

Guided Study Course: Additionally, students with a CGPA exceeding 8.0 are eligible to opt for guided study courses within their elective category. These courses offer a self-paced learning experience, allowing students to delve deeper into subjects of their interest under minimal supervision.

Club Activities: Advanced learners are not only encouraged but actively facilitated to participate in various academic competitions, workshops, e-courses, and guest lectures. Clubs such as the coder's club, IoT Club, among others, provide platforms for honing their skills and fostering innovation.

Industry Supported Courses: Recognizing their capability, advanced learners are afforded flexibility in choosing their course load. They can opt for a combination of regular courses and industry-supported modules under the choice-based credit system, thereby broadening their academic horizons.

Exposure Events: To ensure advanced learners stay abreast of the latest advancements in their field, the institution organizes regular webinars, seminars, and guest lectures. These events serve as avenues for students to gain exposure to cutting-edge technologies and industrial practices, enriching their learning experience.

Support for Slow Learners:

Remedial Classes: Specialized remedial classes are arranged after regular working hours during each semester to provide targeted support to students with arrears. These classes offer a conducive environment for students to address their academic shortcomings under the guidance of experienced faculty members.

Tutor Ward Meetings: Periodic tutor ward meetings serve as platforms for addressing both academic and personal concerns of slow learners. These one-on-one sessions enable mentors to offer personalized guidance and support, fostering a conducive learning environment.

Counselling and Parent-Teacher Meetings: Recognizing the multifaceted challenges faced by slow learners, the institution conducts counseling sessions and parent-teacher meetings.

Bridge Courses: Annual bridge courses are specifically designed for lateral entry students to reinforce their fundamental knowledge in essential subjects such as Mathematics, Communication, and Programming skills. These courses serve as a stepping stone, empowering students to integrate seamlessly into the academic curriculum.

These comprehensive support mechanisms underscore the institution's commitment to ensuring that every student, regardless of their learning pace, receives the requisite assistance and opportunities to excel academically and personally throughout their educational journey at Thiagarajar College of Engineering.

File Description	Document
Upload Any additional information	View Document
Provide link for additional information	View Document

2.2.2

Student - Full time teacher ratio (Data for the latest completed academic year)

Response: 19.2

File Description	Document
List showing the number of students in each of the programs for the latest completed academic year across all semesters	View Document
Certified list of full time teachers along with the departmental affiliation in the latest completed academic year.	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.3 Teaching- Learning Process

2.3.1

Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experience and teachers use ICT- enabled tools including online resources for effective teaching and learning process

Response:

Thiagarajar College of Engineering (TCE) prioritizes a multifaceted approach to education, emphasizing experiential learning, participative learning, and problem-solving methodologies.

Experiential Learning:

Conceive Design Implement Operate (CDIO) Framework:

TCE adopts the CDIO framework, a globally recognized educational initiative aimed at enhancing product development skills. This framework focuses on nurturing the affective and psychomotor domains of learning, ensuring that students not only grasp theoretical concepts but also gain practical experience in designing and implementing engineering solutions.

Specialized Courses:

To foster creativity, communication, and collaboration, TCE offers specialized courses such as Engineering Exploration, Lateral Thinking, Design Thinking, and System Thinking. These courses empower students to think critically and innovate, preparing them to participate in national and international contests like Hackathons and professional society events.

Industrial Exposure:

Recognizing the importance of real-world exposure, TCE organizes regular industrial visits and in-plant trainings. These initiatives provide students with firsthand experience of industrial practices and standards.

In-Lab Internships:

In-lab internships are a cornerstone of TCE's experiential learning approach. Students have the opportunity to engage in practical projects in domains such as Data Analytics, Machine Learning, Image and Video Analytics, and Robotics.

Participative Learning:

Interactive Classrooms:

TCE's departments are equipped with state-of-the-art reconfigurable classrooms and interactive digital boards. These facilities facilitate active and collaborative learning, allowing students to engage with course material in dynamic ways and participate actively in discussions and activities.

Lecture Capture System:

Utilizing advanced technology, TCE records lectures using the Impartus Lecture Capture system. This enables students to access lecture recordings at their convenience, providing flexibility in learning and allowing for review and reinforcement of concepts outside of class hours.

Industry-Supported Courses:

Collaborating with leading companies such as IBM, CDAC, Wipro Technologies, and Texas Instruments, TCE offers industry-supported courses. These courses are designed to impart relevant skills and provide exposure to current industrial practices, ensuring that students are well-prepared for the demands of the workforce.

Problem-Solving Methodologies:

Project Works:

In the final semester, students undertake exclusive project works based on recommendations from industries, research interests, and societal needs. Rigorous assessment criteria are employed to evaluate the quality and effectiveness of these projects, fostering a culture of innovation and problem-solving.

Internships:

TCE encourages students to undertake internships in industries during their final semester. These internships serve as valuable opportunities for skill development and practical experience, bridging the gap between academic learning and professional practice.

Mini Projects and Case Studies:

Throughout their academic journey, students engage in mini projects and case studies to enhance their problem-solving skills. These practical exercises provide hands-on experience in tackling real-world challenges and reinforce theoretical concepts learned in class.

Tutorial Classes:

Periodic tutorial classes are conducted, accompanied by tutorial sheets featuring sample problems from competitive examinations like GATE. These classes provide students with additional support and practice opportunities, helping them develop strong problem-solving abilities.

Community Projects:

TCE actively promotes community engagement through projects facilitated by organizations like NCC/NSS and professional societies like Engineers without Borders (EWB) and Indo-Universal Collaborations for Engineering Education Engineering Projects in Community Services (IUCEE EPICS).

File Description	Document
Upload any additional information	View Document
Provide Link for Additional Information	View Document

2.3.2

The institution adopts effective Mentor-Mentee Schemes to address academics and student-psychological issues

Response:

Mentor-Mentee Schemes at Thiagarajar College of Engineering

Mentor-Mentee Schemes are integral to the ethos of Thiagarajar College of Engineering, serving as a cornerstone for addressing not only academic challenges but also student-psychological issues. These schemes are meticulously structured to cultivate supportive relationships and foster holistic growth

among students. Here's an in-depth exploration of how these schemes operate within the institution:

Assigning Mentors: Under the mentorship program, each faculty member is entrusted with a group of 20 to 25 students, overseen by the respective department head. This allocation ensures personalized attention and guidance for every student, enhancing their overall academic and personal development.

Training for Mentors: To equip mentors with the necessary skills and knowledge, comprehensive training sessions on "Mentorship Skills" are conducted. These sessions delve into various aspects such as effective communication, active listening, conflict resolution, and awareness of available resources. Through this training, mentors gain a deeper understanding of their roles and responsibilities, enabling them to better support their mentees.

Structured Meetings: Scheduled weekly meetings between mentors and mentees serve as the cornerstone of the mentor-mentee relationship. These interactions can take place either in-person or virtually, accommodating the preferences and availability of both parties. During these meetings, mentors provide invaluable guidance on course selection, study strategies, and academic goal-setting, thereby empowering mentees to optimize their academic performance.

Personal and Psychological Support: Beyond academic guidance, mentors create a safe and supportive environment for mentees to address personal struggles, stressors, and psychological issues. By fostering open and empathetic dialogue, mentors aim to alleviate feelings of isolation and anxiety among mentees, promoting overall well-being and resilience.

Documentation and Evaluation: To ensure accountability and effectiveness, detailed minutes of mentor-mentee meetings are recorded and consolidated at the department level. These records are then forwarded to the Dean (Students) for further review and action. Additionally, the efficacy of the mentor-mentee system is assessed through surveys conducted at the end of every semester, enabling continuous improvement and refinement of the program.

Telecounseling Services: Recognizing the diverse needs of students, Thiagarajar College of Engineering offers telecounseling services provided by external experts. These services complement the mentor-mentee framework by offering additional support for students facing various concerns and challenges. Whether academic, personal, or psychological in nature, students have access to professional guidance and assistance, further enhancing their overall well-being and academic success.

In essence, Mentor-Mentee Schemes at Thiagarajar College of Engineering embody the institution's commitment to nurturing a supportive and inclusive learning environment. By fostering meaningful connections, providing tailored guidance, and offering comprehensive support services, these schemes empower students to thrive academically, personally, and psychologically throughout their educational journey. Through continuous evaluation and refinement, the institution remains dedicated to ensuring the holistic development and success of its students.

File Description	Document
Upload any additional information	View Document
List of Active mentors	View Document
Provide Link for Additional Information	View Document

2.3.3

Preparation and adherence of Academic Calendar and Teaching plans by the institution

Describe the Preparation and adherence to Academic Calendar and Teaching plans by the institution.

Response:

The process for the preparation of academic calendar is as follows:

- Formulation of Academic Calendar Committee consisting of Dean (Academic Process), the Controller of Examinations (CoE) and Faculty-in- charge.
- Collection of proposed activities from all the Head of the Departments, Deans, Registrars and the CoE.
- The schedules for the following activities are planned. Course registration, preparation of class timetable, commencement of classes, uploading course plan, continuous assessment tests, assignments, class committee meetings, project reviews, submission of synopsis, submission of project reports, viva voce, last date for mark entry, Board of Studies, Academic Council, industrial visits, parent teacher meetings, programme performance assessment committee meetings and faculty vacation. Terminal examinations, publication of results, payment of examination and college fees.
- Once the draft copy is prepared, the Academic Calendar is placed in Standing Committee Meeting for approval. The approved calendar is circulated among all stakeholders.
- The academic calendar will be provided to all the faculty members and students and also published in the college website.

Adherence to Academic Calendar:

- All activities are conducted by the respective HoDs/Deans/CoE/ Registrar as per the academic calendar.
- The industry supported courses are conducted as per the availability of industry experts.
- The faculty members prepare their respective teaching plan for the entire course and the practical to be performed in the laboratory will be planned well in advance.
- The completion of the syllabus and other activities will be monitored by the respective HODs, Deans and the Principal.
- A few activities shall be deviated due to some unavoidable circumstances like placement, declaration of holidays under negotiable instruments act by the Government.
- Change in the academic calendar (if any) will be informed to the students and teachers through circulars well in advance.

Teaching Plans:

- Every faculty member prepares a teaching plan at the beginning of theevery semester for every course handled.
- The teaching plan includes learning objectives, links to learning resources, formative and summative assessment plans, time plan for lecturing, plans for incorporating active and collaborative learning.
- The teaching plans are developed in course committee meetings and are submitted to the head of the department for approval.
- The teaching plans are also shared with the learners for followup. The templates for teaching plan of the institute can be accessed at https://www.tce.edu/academics/process-format

File Description	Document
Upload any additional information	View Document
Provide Link for Additional Information	View Document

2.4 Teacher Profile and Quality

2.4.1

Average percentage of full time teachers appointed against the number of sanctioned posts year wise during the last five years

Response: 97

2.4.1.1 **Number of sanctioned posts year wise during the last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
233	225	228	241	238

File Description	Document
Sanction letters indicating number of posts sanctioned by the competent authority (including Management sanctioned posts).	View Document
Provide the relevant information in institutional website as part of public disclosure	View Document
Institutional data in the prescribed format (data template merged with 2.4.3 and 2.4.4)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.4.2

Percentage of full time teachers with Ph.D./D.Sc. / D.Litt./ L.L.D during the last five years

Response: 70.49

2.4.2.1 **Number of full time teachers with *Ph.D./D.Sc. / D.Litt./ L.L.D* during the last five years**

Response: 215

File Description	Document
List of faculty having Ph.D./D.Sc. / D.Litt./ L.L.D along with particulars of the degree awarding university, subject and the year of award per academic year.	View Document
Institutional data in the prescribed format (data template merged with 3.2.3 and 3.4.2)	View Document
Copies of Ph.D./D.Sc. / D.Litt./ L.L.D awarded by UGC recognized universities	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.4.3

Average teaching experience of full time teachers (Data to be provided only for the latest completed academic year, in number of years)

Response: 13.29

2.4.3.1 **Total teaching experience of full-time teachers as of latest completed academic year**

Response: 3070

File Description	Document
Institutional data in the prescribed format (data template merged with 2.4.1 and 2.4.4)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.4.4

Percentage of full time teachers working in the institution throughout during the last five years

Response: 71.67

2.4.4.1 **Number of full time teachers worked in the institution throughout during the last five years:**

Response: 172

File Description	Document
Institutional data in the prescribed format (data template merged with 2.4.1 and 2.4.3)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.5 Evaluation Process and Reforms

2.5.1

Average number of days from the date of last semester-end/ year- end examination till the last date of declaration of results during the last five years

Response: 16.2

2.5.1.1 ***Number of days from the date of last semester-end/ year- end examination till the declaration of results year-wise during the last five years***

2022-23	2021-22	2020-21	2019-20	2018-19
18	18	18	10	17

File Description	Document
Result Sheet with date of publication	View Document
Institutional data in the prescribed format (data template)	View Document
Exam timetable released by the Controller of Examination	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.5.2

Percentage of student complaints/grievances about evaluation against total number appeared in the examinations during the last five years

Response: 0.97

2.5.2.1 **Number of complaints/grievances about evaluation year wise during last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
71	65	0	0	74

2.5.2.2 **Number of students appeared in the examination conducted by the institution year wise during the last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
4375	4290	4266	4266	4445

File Description	Document
List of students who have applied for re-valuation/re-totaling program wise certified by the Controller of Examinations year-wise for the assessment period.	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.5.3

IT integration and reforms in the examination procedures and processes including Continuous Internal Assessment (CIA)/Formative Assessment have brought in considerable improvement in Examination Management System (EMS) of the Institution

Describe the examination reforms with reference to the following within a minimum of 500 words

- **Examination procedures**
- **Processes integrating IT**
- **Continuous internal assessment system**

Response:

The institution has automated academic and examination process. Starting from course registration to publication of results is carried out digitally. The examination schedule is published in automated software and students can view it using mobile app also. All announcements are made using software so as to reach stakeholders instantly. The semester examination answer scripts are first assigned dummy numbers based on bar code. The examiners who evaluate the answer scripts do not know the identity of the students. The system of issuing hall tickets has been abolished as the students have valid ID card. This saves time and efforts required for printing and distributing hall tickets. After the publication of results, the students can go-through their answer scripts and scheme of evaluation. If there is scope for additional marks, students can appeal. The appeals are examined by faculty during revaluation of the answer paper and verified by Head of the department for fairness. Periodically, academic audits are conducted to identify scope for improvement in the standard of questions. Private students can register arrear examinations through online. This facilitates ease of operation for both students and COE office. The adoption of IT in the entire chain leads to error free and faster operation.

Continuous Internal Assessment System:

- The process of Continuous Internal Assessment has been completely automated in www.camu.in.
- Question papers in accordance with Bloom’s taxonomy and in alignment with course outcomes are designed inCAMU software in the link
- The schedule for Continuous Assessment Test is also loaded in CAMU.
- The scores in Continuous Assessment Test with respect to every question and course outcome are also recorded within fourteen days from the completion of the continuous assessment test in CAMU
- Analysis of the scores in internal assessment are enabled through various report generation.
- Learners can access the schedule of Continuous Assessment Test and scores through web application and also through the mobile app.
- The consolidated internal assessment scores are submitted to the Controller of Examinations every semester for the award of grades

File Description	Document
Upload any additional information	View Document
Provide links as Additional Information	View Document

2.6 Student Performance and Learning Outcomes

2.6.1

The institution has stated learning outcomes (programme and course outcome)/graduate attributes which are integrated into the assessment process and widely publicized through the website and other documents and the attainment of the same are evaluated by the institution

Response:

At Thiagarajar College of Engineering, the curriculum is designed based on Outcome-Based Education (OBE) principles, and the competency-based curriculum has been aligned with the accreditation policy of the National Board of Accreditation. Here is an overview of the curriculum design and outcome assessment processes:

1. **Stakeholder Feedback:**
   - Initial feedback from various stakeholders, including alumni, industry, faculty, professional societies, and parents, is collected.
2. **Program Educational Objectives (PEO), Program Outcomes (PO), and Program Specific Outcomes (PSO):**
   - Drafts of PEOs, POs, and PSOs are prepared through brainstorming sessions at the department level committee.
   - Articulated PEOs, POs, and PSOs are discussed and refined in the Board of Studies (BoS).
   - The final version is approved in the Academic Council Meeting (ACM) and published on various platforms for dissemination.
3. **Curriculum Design:**
   - Credit distribution considers guidelines from various sources, including AICTE, Anna University, and professional societies.
   - First-level course outcomes are identified based on inputs from POs, PSOs, internal and external stakeholder feedback.
   - Courses are classified as core, elective, lab, theory cum practical courses, and a course map is prepared.
   - Syllabus is designed for each course, reviewed, and approved through the Board of Studies and Academic Council meetings.
4. **SIG Based Course Design:**
   - Course designers from each SIG identify course outcomes, correlate them with POs and PSOs, and create a Bloom's taxonomy-based assessment pattern.
   - The course design is reviewed in the SIG meeting, and the final syllabus is formed.
5. **Outcome-Based Education Implementation:**
   - OBE has been in practice since the academic year 2014-15, and all assessments are mapped with course outcomes.

- For graduates before 2014-15, course outcomes are measured based on cumulative continuous assessment marks and terminal examination performance.

6. **Course Outcome Attainment Calculation:**
   - COs are assessed through continuous assessment tests, terminal examinations, assignments, projects, and course exit surveys.
   - Expected Proficiency (EP) and Expected Level of Attainment (ELA) are fixed based on the average performance in end-semester examinations.
   - CO attainment is calculated at each stage, and corrective actions are formulated in the Program Performance Assessment Committee Meeting.
7. **Program Outcome and Program Specific Outcome Assessment:**
   - Direct and indirect assessments are used for POs and PSOs.
   - Targets are set based on statistical values of attainment in the previous three academic years.
   - Surveys, including Program End Survey and Employer Survey, are conducted.
   - Attainment levels are calculated, discussed in the Programme Performance Assessment Committee (PPAC) meeting, and refinements are made in subsequent years.
8. **Automation:**
   - The process of CO, PO, and PSO attainment calculation has been automated in TCENET/CAMU.

This comprehensive approach ensures continuous improvement in the curriculum and educational learning outcomes at Thiagarajar College of Engineering.

File Description	Document
Upload POs and COs for all courses (exemplars from Glossary)	View Document
Upload any additional information	View Document
Provide links as Additional Information	View Document

2.6.2

Pass percentage of students (excluding backlog students) (Data for the latest completed academic year)

Response: 96.49

2.6.2.1 **Total number of final year students who passed the examination conducted by Institution during the latest completed academic year:**

Response: 1046

File Description	Document
Institutional data in the prescribed format (data template)	View Document
Certified report from the COE indicating the pass percentage of students of the final year (final semester) eligible for the degree program-wise / year wise	View Document
Annual report of Controller of Examinations (COE) highlighting the pass percentage of final year students	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

2.7 Student Satisfaction Survey

2.7.1

Online student satisfaction survey regarding teaching learning process

Response: 3.69

Criterion 3 - Research, Innovations and Extension

3.1 Promotion of Research and Facilities

3.1.1

The institution’s research facilities are frequently updated and there are well defined policy for promotion of research which is uploaded on the institutional website and implemented

Response:

Introduction:

To encourage interest and breakthroughs in cutting-edge fields of science, engineering, and technology, the institution has adopted a research policy. The promotion policy has developed a robust research and innovation ecosystem by providing travel grants to faculty and students to enable them to participate and present papers at national and international conferences, providing travel assistance for presentations of research and development projects, and periodically rewarding quality research publications with incentives. In addition to supporting the academic program, research efforts expand the faculty members' knowledge. An outline of the college's research policy is now available on the college's website.

Research Facilities:

The institute has five nodal research centers, an incubation center, and more than fifty well-established laboratories that enable faculty, students, and research scholars to conduct research and development. Research facilities are regularly updated and available for extensive research to be conducted. Frequently, laboratories are renovated to aid in research. The use of licensed software in the laboratories aids in advancing the research. Agreements have been made to promote the culture of collaborative research with higher learning institutions and industries.

Seed money is provided to faculty members who wish to establish their own research facilities for carrying out research in emerging fields. Faculty is provided with financial assistance in order to conduct proof of concept experiments in the lab. Faculty members and students are provided with financial assistance to apply for patents for their innovative ideas and products. Periodically, meetings are conducted to provide guidelines for submission of project proposals to Govt. agencies. Ten funded projects were sanctioned in 2022-23.

Research Promotion:

Students, scholars, and faculty are regularly involved in awareness programs on 'Research Paper Writing', 'Quality Measure of Journals using SJR Values', and 'Web of Science'. plagiarism checking tool ‘Turnitin’ has been purchased to submit articles with low similarity rates and feel more confident in publishing the research work. The access has been given to faculty and scholars. Research incentive is provided to encourage our faculty scholars and UG & PG Students from the calendar 2021 to publish their research work in high quality journals. The incentive amount is based on SCImago Journal Rank (SJR). The amount for authors who have published collaboratively with premier institutions is also increased. In 2022, 86 faculty, 29 scholars and 34 students received quality publication incentives.

Thiagarajar Research Fellowship (TRF):

All departments of our institute have research supervisors available to guide PhD scholars. Our institute introduced the Thiagarajar Research Fellowship (TRF) program in order to attract research scholars to our institution. The opportunity has been utilized by 5 research scholars who have completed their research, and 26 scholars are currently benefiting from it. Scholars are periodically updated on their progress during the research period.

Further, a course on ‘Research Practice’ has been introduced to inculcate research among UG students.

File Description	Document
Upload any additional information	View Document
Provide links as Additional Information	View Document

3.1.2

The institution provides seed money to its teachers for research

Response: 21.35

3.1.2.1 **Amount of seed money provided by institution to its teachers for research year wise during last five years (INR in lakhs)**

2022-23	2021-22	2020-21	2019-20	2018-19
9.36	3.61	3.10	5.28	00

File Description	Document
Sanction letters of seed money to the teachers is mandatory	View Document
List of faculty who have been provided with seed money for research along with the title of the project, duration and amount year-wise	View Document
Institutional data in the prescribed format (data template)	View Document
Audited Income-Expenditure statement highlighting the expenditure towards seed money endorsed by the Finance Officer	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

3.1.3

Percentage of teachers receiving national/ international fellowship/financial support by various agencies for advanced studies/ research during the last five years

Response: 10.82

3.1.3.1 **Number of teachers who received national/international fellowship /financial support by various agencies, for advanced studies / research; year-wise during the last five years**

Response: 33

File Description	Document
List of teachers who have received the awards along with nature of award, the awarding agency etc.	View Document
List of teachers who have received the awards along with nature of award, the awarding agency etc.	View Document
Institutional data in the prescribed format (data template)	View Document
E-copies of the award letters of the teachers	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

3.2 Resource Mobilization for Research

3.2.1

Total Grants research funding received by the institution and its faculties through Government and non-government sources such as industry, corporate houses, international bodies for research project, endowment research chairs during the last five years (INR in Lakhs)

Response: 381.1138

File Description	Document
List of Extramural funding received for research, Endowment Research Chairs received during the last five years along with the nature of award, the awarding agency and the amount	View Document
Institutional data in the prescribed format (data template is merged with 3.2.2)	View Document
Copies of the letters of award for research, endowments, Chairs sponsored by non-government sources	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

3.2.2

Number of research projects per teacher funded by government, non-government , industry, corporate houses, international bodies during the last five years

Response: 0.1

3.2.2.1 **Number of research projects funded by government and non-government agencies during the last five years.**

Response: 32

File Description	Document
List of project titles with details of Principal Investigator, amount sanctioned and sanctioning agency etc	View Document
Institutional data in the prescribed format (data template merged with 3.2.1)	View Document
Copies of the grant award letters for research projects sponsored by government agencies	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

3.2.3

Percentage of teachers recognised as research guides as in the latest completed academic year

Response: 40.26

3.2.3.1 **Number of teachers recognised as research guides as in the latest completed academic year:**

Response: 93

File Description	Document
Upload copies of the letter of the university recognizing faculty as research guides	View Document
Institutional data in the prescribed format (data template merged with 2.4.2 and 3.4.2)	View Document

3.3 Innovation Ecosystem

3.3.1

Institution has created an ecosystem for innovations, Indian Knowledge System (IKS),including awareness about IPR, establishment of IPR cell, Incubation centre and other initiatives for the creation and transfer of knowledge/technology and the outcomes of the same are evident

Response:

Our Institution has established a Research and Development (R&D) division to promote research interest in cutting-edge fields in Science, Engineering, and Technology, as well as to handle academic research, sponsored research, and the Institute's Intellectual Property Rights.

Academic and Sponsored Research: To provide guidelines for academic and sponsored research, our R&D division has developed its own research policy. TCE is an approved research centre of Anna University and offers part-time and full-time PhD programmes, as well as M.S. research programmes. A growing number of research scholars are enrolling in PhD programs each year. TCE provides TRF (Thiagarajar Research Fellowship) monetary assistance to full-time Ph.D. scholars. In addition, the R&D division encourages faculty to conduct multidisciplinary research with government and non-government funding agencies by identifying calls for proposals and reviewing applications submitted by faculty members.

With the help of the IIC, the IPR Cell, and the EDC Cell, our institute fosters innovation and entrepreneurship.

Institute Innovation Council:MICMIC ('MHRD's Innovation Cell (MIC)') has supported the establishment of "Institution's Innovation Councils (IICs)" to foster an innovation promotion ecosystem on higher learning institutions. Our institute has hosted the Institution Innovation Council (IIC) since

2021. IIC activities involved 240 students, including 18 various programmes that focused on the development of skills and the production of creative products.

IPR Cell: As part of its mission, the TCE aims to develop intellectual capability to its maximum extent. TCE has a separate Intellectual Property Cell under R&D that facilitates, encourages, promotes, and safeguards intellectual property of its faculty, students, researchers, and staff. To provide guidance to inventors concerning the rules of the Institute regarding intellectual property, the IPR Cell has formulated its intellectual property policy. With the assistance of CII, NIPAM, and RGNIIPM, the IPR cell organizes IPR awareness workshops and courses. In order to receive funding for intellectual property rights, our college has enrolled in the KAPILA program of the government. Our college has been registered with TRIZ (Theory of Inventive Problem Solving) ASIA to move innovation from planning to implementation.

Students are encouraged to start their own businesses by the College Entrepreneur Development Cell (EDC) by providing awareness programs and connecting them with workers in the field. Through the use of CDIO concepts in the curriculum, students are more likely to win competitions and obtain patents. Technology Business Incubation (TBI) allows TCE's technology and rights to be more widely utilized.

Indian Knowledge System: In addition, our institute encourages the study of Indian knowledge systems. It is supported by a number of research projects, such as "Re-identification of Religious Idols, arts and sculptures, South Indian plant recognition, development of dance analytics using computer vision and artificial intelligence, and recognition of mudra."

File Description	Document
Upload any additional information	View Document
Link for Any other additional information	View Document

3.4 Research Publications and Awards

3.4.1

The Institution ensures implementation of its stated Code of Ethics for research.

The institution has a stated Code of Ethics for research and the implementation of which is ensured through the following:

1. **Inclusion of research ethics in the research methodology course work**
2. **Presence of institutional Ethics committee (Animal, Chemical, Bio-ethics etc.)**
3. **Plagiarism check through software**
4. **Research Advisory Committee**

Response: A. All of the above

File Description	Document
Institutional data in the prescribed format (data template)	View Document
Copy of the syllabus of the research methodology course work to indicate if research ethics is included	View Document
Constitution of the ethics committee and its proceedings as approved by the appropriate body	View Document
Constitution of research advisory committee and its proceedings as approved by the appropriate body.	View Document
Bills of purchase of licensed plagiarism check software in the name of the HEI	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

3.4.2

Number of candidates registered for Ph.D per teacher during the last five years

Response: 1.65

3.4.2.1 **Number of candidates registered for Ph.D during the last 5 years:**

Response: 153

File Description	Document
Ph.D. registration letters/Joining reports of candidates.	View Document
Letter from the university indicating name of the Ph.D. student with title of the doctoral study and the name of the guide.	View Document
Institutional data in the prescribed format (data template merged with 2.4.2 and 3.2.3)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

3.4.3

Number of research papers published per teacher in the Journals as notified on UGC CARE list during the last five years

Response: 2.32

3.4.3.1 **Number of research papers in the Journals notified on UGC CARE list year wise during the last five years**

Response: 709

File Description	Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document
Link to the uploaded papers, the first page/full paper (with author and affiliation details) on the institutional website	View Document
Links to the paper published in journals listed in UGC CARE list	View Document
Link re-directing to journal source-cite website in case of digital journals	View Document

3.4.4

Number of books and chapters in edited volumes published per teacher during the last five years

Response: 2.23

3.4.4.1 **Total Number of books and chapters in edited volumes published during the last five years**

Response: 680

File Description	Document
List of chapter/book along with the links redirecting to the source website	View Document
Institutional data in the prescribed format (data template)	View Document
Copy of the Cover page, content page and first page of the publication indicating ISBN number and year of publication for books/chapters	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

3.4.5

Bibliometrics of the publications during the last five years based on average Citation index in Scopus/ Web of Science

Response: 7.24

File Description	Document
Bibliometrics of the publications during the last five years	View Document

3.4.6

Bibliometrics of the publications during the last five years based on Scopus/ Web of Science – h-index of the Institution

Response: 41

File Description	Document
Bibiliometrics of publications based on Scopus/ Web of Science - h-index of the Institution	View Document

3.5 Consultancy

3.5.1

Revenue generated from consultancy and corporate training during the last five years

Response: 127.03

3.5.1.1 **Total Amount generated from consultancy and corporate training year wise during last five years (INR in lakhs)**

2022-23	2021-22	2020-21	2019-20	2018-19
26.89737	46.64956	14.65324	27.69425	11.13492

File Description	Document
Letter from the beneficiary of the consultancy along with details of the consultancy fee	View Document
Institutional data in the prescribed format (data template)	View Document
CA certified copy of statement of accounts as attested by head of the institution	View Document
Audited statements of accounts indicating the revenue generated through corporate training/consultancy.	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

3.6 Extension Activities

3.6.1

Outcomes of extension activities in the neighbourhood community in terms of impact and sensitizing the students to social issues and holistic development, and awards received if any during the last five years (Showcase at least four case studies to the peer team)

Describe the impact of extension activities in sensitising students to social issues and holistic development with four case studies within a maximum of 500 words

Response:

Introduction:

The Thiagarajar College of Engineering (TCE) NSS and NCC team have embarked on a transformative journey by adopting five villages —Thangalacheri, Sambakulam, Soorakulam, Thanakkankulam, and Vilacheri. In the academic years 2018-19 and 2019-20, the focus was on Thangalacheri, while in 2021-22 and 2022-23, efforts were directed towards Sambakulam. This initiative aims to make a meaningful impact on the lives of the residents through a series of diverse activities tailored to address the specific needs and challenges of each village. Through a methodical approach, villages grappling with fundamental socio-economic challenges including unemployment, poverty, illiteracy, gender inequality, women's empowerment, drug awareness, entrepreneurship, child health, sanitation and hygiene issues, and environmental sustainability were identified. In terms of social and community development, outreach activities such as Swachh Bharat, Swachhata Pakhwada, tree planting, awareness levels on life, soft, and communication skills, character building, and personality development are currently being carried out in nearly five neighborhood localities. These neighborhoods include Thirruparnkundram, Idayapatti, Thiruvathavur, Tirunagar, and Vellaikal.

Case Study 1

Activity: UBA survey / Adopted village.

Dates: 26.01.2019 and 02.02.2019

The NSS had conducted survey in Sambakulam under the Unnat Bharat Abhiyan initiative which had a profound impact on the community, transcending mere data collection. Through meticulous engagement and collaboration, the survey sparked meaningful conversations and fostered a sense of partnership between NSS volunteers and residents. Ultimately, the survey served as a catalyst for sustainable development, driving positive change and empowering Sambakulam residents to shape their own future.

Case Study 2

Activity: Plastic harvesting on the adapted village

Dates: 21.09.2019

The NSS-led plastic collection initiative in Thangalacheri sparked a significant impact on society, transcending mere clean-up efforts. By mobilizing the community and raising awareness about responsible waste management practices. Through educational sessions and active engagement, residents were empowered to adopt long-term behavioral changes, promoting recycling and reducing single-use plastic consumption. Moreover, the initiative showcased the influential role of student-led efforts in addressing pressing environmental challenges, underscoring the potential for positive change when communities unite for a common cause.

Case Study 3

Activity: NSS Village Development Camp

Date: 17/02/2020 to 22/02/2020

The impactful camp conducted at Thanglacheri village stands as a testament to the commitment of volunteers to community development and engagement. The camp aimed to address socio-economic challenges, foster sustainable growth, and strengthen the bond between the NSS unit and the local community. Through a diverse range of initiatives including educational workshops, healthcare awareness campaigns, environmental sustainability projects, and skill development programs, volunteers representing diverse academic backgrounds collaborated with local residents to identify needs and implement solutions.

Case Study 4

Activity: Homeopathy chronicles: A journey of understandings for adopted villages

Date: 30.08.2021

TCE’s active participation as a Contributing Institute in the Unnat Bharat Abhiyan is augmented by its dedicated involvement with schools in Sambakulam village, showcasing a dual commitment to higher education and grassroots impact. By integrating into the educational fabric of Sambakulam village, TCE

seeks to be a catalyst for positive change and holistic development, enhancing socio-economic conditions and educational opportunities for residents.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

3.6.2

Number of extension and outreach programs conducted by the institution through organized forums including NSS/NCC with involvement of community year wise during the last five years

Response: 82

3.6.2.1 **Number of extension and outreach programs conducted by the institution through organized forums including NSS/NCC with involvement of community year wise during the last five years.**

2022-23	2021-22	2020-21	2019-20	2018-19
18	20	07	26	11

File Description	Document
Photographs and any other supporting document of relevance should have proper captions and dates.	View Document
Institutional data in the prescribed format (data template)	View Document
Detailed report for each extension and outreach program to be made available, with specific mention of number of students participated and the details of the collaborating agency	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

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

Response: 59

File Description	Document
Summary of the functional MoUs/linkage/collaboration indicating start date, end date, nature of collaboration etc	View Document
List of year wise activities and exchange should be provided	View Document
List and Copies of documents indicating the functional MoUs/linkage/collaborations activity-wise and year-wise	View Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

Criterion 4 - Infrastructure and Learning Resources

4.1 Physical Facilities

4.1.1

The Institution has adequate infrastructure and other facilities for

1. **teaching – learning, viz., classrooms, laboratories, computing equipment etc**
2. **ICT – enabled facilities such as smart class, LMS etc.**
3. **Facilities for Cultural and sports activities, yoga centre, games (indoor and outdoor), Gymnasium, auditorium etc.**

Response:

Facilities for Teaching-Learning

Thiagarajar College of Engineering (TCE) offers eight undergraduate (UG) programs lasting four years, one five-year undergraduate program, six two-year postgraduate (PG) programs, and one integrated five-year program. The campus has 86 classrooms to accommodate UG and PG students from various departments, with a total of 92 classrooms available. Additionally, there are three drawing halls and twelve studios in the Architecture Department. Seven seminar halls are utilized for activities such as guest lectures, student contests, and seminars.

Ninety laboratories have been established across various departments, all equipped with state-of-the-art facilities and safety measures. Some laboratories have received funding from international companies like National Instruments, AlteraVLSI, Agilent Technologies, Motorola, Honeywell, Bentley, Microsoft, IBM, Siemens, and TVS Motor.

The campus has a total of approximately 1800 computers, with around 1500 allocated for student usage.

ICT-enabled Facilities:

All 92 classrooms are equipped with Liquid Crystal Display (LCD) projectors, Wireless Fidelity (Wi-Fi), and Local Area Network (LAN) connections. Ten classrooms have Lecture Capturing Systems (LCS) for recording lectures, which can be shared with students for reference. Eleven classrooms feature Samsung smart display units, enhancing digital communication and internet-based learning.

Facilities for Cultural and Sports Activities:

TCE boasts a well-equipped indoor stadium spanning 23,674 square feet across the ground floor and first floor, with a seating capacity of 300. Additionally, there is a yoga hall (12m x 9m) and a gymnasium (13m x 12m) on campus.

The campus features two basketball courts, four volleyball courts (including two wooden courts), four hardwood-floored badminton courts, a synthetic tennis court, two kabaddi courts, two ball badminton

courts, two handball courts, a football court, two kho-kho courts, five table tennis boards, a hockey court, an athletic 200m track with high jump and long jump pits, and a cricket ground.

The college has three auditoriums: the fully air-conditioned Karumuttu Sundaram (KS) Auditorium with a seating capacity of 204, the Karumuttu Manickavasagam (KM) Auditorium with a seating capacity of 800, and an open-air auditorium with a seating capacity of 2000 for conducting cultural activities.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

4.1.2

Percentage of expenditure excluding salary, for infrastructure development and augmentation year wise during the last five years

Response: 42.83

4.1.2.1 **Expenditure for infrastructure development and augmentation, excluding salary year wise during last five years (INR in lakhs)**

2022-23	2021-22	2020-21	2019-20	2018-19
455.78	87.84	491.44	798.79	654.12

File Description	Document
Institutional data in the prescribed format (data template is merged with 4.2.2 and 4.4.1)	View Document
Audited income and expenditure statement of the institution to be signed by CA and counter signed by the competent authority (relevant expenditure claimed for infrastructure augmentation should be clearly highlighted)	View Document

4.2 Library as a Learning Resource

4.2.1

Library is automated with digital facilities using Integrated Library Management System (ILMS), adequate subscriptions to e-resources and journals are made. The library is optimally used by the faculty and students

Response:

Our institution has fully embraced technological advancements to enhance the efficiency and accessibility of our library services. Central to this transformation is the Autolib Library Management Software, which incorporates **Radio Frequency Identification (RFID) technology.** This software serves as the backbone for our library's day-to-day operations, seamlessly managing tasks including book circulation, stock management, cataloging of books and journals, user data management, fine payments, department library access, web Online Public Access Catalog (OPAC), E-Gate register, and stock verification.

A standout feature of Autolib is its ability to generate a variety of reports, offering valuable insights into library activities such as accession reports, user login reports, department library activities, frequently issue and return of books, frequent user details, and stock details.

Complementing Autolib is our International WEB OPAC, an Online Public Access Catalog designed for simplicity and efficiency. Users can easily check the availability of books in our library through this platform. What sets our WEB OPAC apart is the seamless integration of open access E-Book details directly into the catalog. This innovative feature is particularly advantageous for students, enabling them not only to track physical book availability but also to discover and access free E-Books within a single platform.

Recognizing the importance of accessibility in the digital age, we have introduced a mobile app for our WEB OPAC. This app empowers students to conveniently use the catalog on their smartphones, facilitating efficient book searches and library activity management on the go. To further enhance the user experience, an auto-renewal feature has also been implemented through our OPAC, allowing students to automatically renew their borrowed books.

Our commitment to providing comprehensive and accessible resources extends to our subscription to Knimbus, a federated search platform. Knimbus offers **24/7 remote login access for over 5000 credentials for users and provides a mobile application called mLibrary for on-the-go access**. Within Knimbus, our collection of e-books includes titles from renowned publishers such as Pearson, ProQuest, McGraw Hill, IEEE-Wiley, and an extensive array of open access E-Books, totaling more than 75,000 titles. Additionally, our e-journals sourced from platforms like IEEE, Springer, Science Direct, ASCE, ASME, along with access to 5000+ E-Technical Magazines, general magazines, and E-newspapers in various regional languages through EDZTER, contribute to a rich repository of academic content.

The integration of resources like Sodhganga, NPTEL, National Digital Library (NDL), National Library and Information Services Infrastructure for Scholarly Content (N-LIST), and Developing Library Network (DELNET) further enriches our digital library. Researchers benefit from the inclusion of the Turnitin anti-plagiarism tool, ensuring the authenticity and originality of research work. Our digital library also houses a curated repository of old semester question papers. By conducting user awareness training, our institution aims to empower the academic community with the knowledge and skills needed to navigate the digital library effectively. TCE remains dedicated to maintaining and enhancing the digital library to provide a seamless and enriching learning experience for all users.Average users per day in TCE Library is around 20 %including staff and students.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

4.2.2

Percentage of expenditure for purchase of books/ e-books and subscription to journals/e-journals year wise during the last five years

Response: 2.82

4.2.2.1 **Expenditure for purchase of books / e-books and subscription to journals/e-journals year wise during last five years (INR in lakhs)**

2022-23	2021-22	2020-21	2019-20	2018-19
28.08	24.31	30.95	45.20	35.44

File Description	Document
Institutional data in the prescribed format (data template merged with 4.1.2 and 4.4.1)	View Document
Audited income and expenditure statement of the institution to be signed by CA and counter signed by the competent authority (relevant expenditure claimed for purchase of books/ e-books and subscription to journals/e-journals should be clearly highlighted)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

4.3 IT Infrastructure

4.3.1

Institution frequently updates its IT facilities and provides sufficient bandwidth for internet connection

Describe IT facilities including Wi-Fi with date and nature of updation, available internet bandwidth within a maximum of 500 words

Response:

Thiagarajar College of Engineering (TCE) has a well-established state-of-the-art Information Technology (IT) infrastructure and facilities for providing research, academic, and consultancy support. The campus is enabled with an internet bandwidth of 1 Gbps from the National Knowledge Network (NKN), 1 Gbps from BSNL, and 100 Mbps from Airtel Internet Leased Lines (ILLs).

The IT services are provided on 24/7 support for anytime anywhere access to knowledge and learning resources. Around 4000+ Local Area Network (LAN) points are provided across the campus, computer labs, and office spaces. Wi-Fi network points over 1000+ numbers were deployed across the campus facilitating students and faculty members to access the academic content anywhere on campus with 24/7 internet service in academic blocks and hostels. The IT infrastructure is upgraded every year to meet the upcoming requirements.

The Data center was established in 2011 with an area of around 645 sq. ft. for consolidating and managing network operations from various servers like App servers, Data Base (DB) servers, and computer clusters into a single facility. The Data center hosts all the servers to ease the provisioning and maintenance of the servers and apps to the entire campus backbone network running throughout the campus. It houses about 8 racks mounted with servers and computer cluster nodes for hosting a variety of services like

- TCE Website (Official Website of the college)
- TCE Attendance Monitoring System (Staff Attendance Maintenance)
- Video Lecture streaming (Stream Video Lectures)
- TCE Moodle (Learning Management System)

An enterprise firewall checkpoint has been deployed to provide a secure campus network in

TCE. Various other IT services and application portals supported by the Datacenter are

- TCE Asset Management System (Asset Tracking System)
- TCE Inventory Control (TCE Stock Maintenance System)
- Maintenance portal (Facilities and request tracking management)
- Faculty profile updation (Automation of Faculty Achievements updation System)

These were introduced to automate the offline processes and to cater to the academic and administrative processes. The GApps services in the hosted environment provide email service to faculty, staff, and students. The data center hosts infrastructure of over Rs.3 crores. It also hosts a 24/7 cooling system with a 250KVA Generator with auto mode support, 30KVA UPS, and a camera surveillance system.

IT Facilities Upgradation Policy/ Procedure:

- The servers are periodically checked once in a week for the release of any new updates and upgrades.
- The firmware upgrade for hardware like access points and switches is done periodically.
- Security patches are upgraded on release.
- A stable version of the operating systems is maintained and upgraded on release.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

4.3.2

Student - Computer ratio (Data for the latest completed academic year)

Response: 2.61

4.3.2.1 **Number of computers available for students' usage during the latest completed academic year:**

Response: 1700

File Description	Document
Purchased Bills/Copies highlighting the number of computers purchased	View Document
Extracts stock register/ highlighting the computers issued to respective departments for student's usage.	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

4.3.3

Institution has dedicated audio visual centre, mixing equipment, editing facility, media studio, lecture capturing system(LCS) and related hardware and software for e-content development

Response:

The Audio-Visual Centre at Thiagarajar College of Engineering (TCE) is a comprehensive facility equipped with state-of-the-art hardware and software to support various audio-visual activities. Here's a detailed overview of the equipment and processes involved:

Facility Description:

- Studio Area: 600 square feet (air-conditioned)
- Control Room Area: 200 square feet
- Power Backup: 3 kVA Uninterrupted Power Supply (UPS) unit
- The centre is equipped with Life size Video conferencing unit for organizing online meetings.
- The lighting requirement is provided by CANARA cool light dimmable CC-22 lighting system.

Works Carried Out:

- Nonlinear video editing
- Audio quality improvement
- Video quality improvement
- Database generation
- Educational content creation for Massively Open Online Courses (MOOCs) and Bridge Courses (Physics, Chemistry, Mathematics, English)
- Video generation for college events and Thiagarajar College

Process

- The audio and video contents are captured using two Panasonic cameras with Sony wired lapel microphone in the centre.
- The captured video and audio content using the cameras are mixed using a 4-channel data video mixer (SE 800) that is equipped with four numbers of 4-inch Thin Film Transistor (TFT) display for mixing, two numbers of 7” display for seeing output.
- The mixed video audio content is edited using U-Lead video studio software and converted to required format such as Full HD format, mobile format, MP3 format and MP4 format.

Hardware available in the centre are

- Three HP Z400 series workstation (Personal Computer)
- Two Panasonic Advanced Video Codec High Definition (AVCHD)Camera
- Two Sony wired lapel microphone
- Data video channel switcher
- Public addressing system
- Mackie 12 channel audio mixer

Software available in the centre are

- Cool edit pro for audio editing
- Adobe premiere for video editing
- U-Lead photo studio for video editing
- Win X HD for Video converter
- Screen cast-o-matic for online teaching
- Camtasia for online teaching

Impartus based Lecture capturing system (LCS)

- Equipment: 10 cameras and 10 Infra-Red (IR) mikes in 10 classrooms
- Storage: Ubuntu-based server for storing captured content

Video Surveilance System

This centre maintains our Institution’ surveillance system with the following facilities

- Cameras: Seventy-nine 2 Mega pixels IP cameras, two 5 Mega pixels IP cameras, revolving type PTZ cameras
- Network Video Recorders: 32-channel, six 16-channel, and one 4-channel

- Display: 40’’ Panasonic display Television
- Video Backup: Three weeks of backup storage

Overall, the Audio-Visual Centre serves multiple purposes including content creation, editing, lecture capturing, and surveillance, making it a crucial resource for academic and administrative activities at TCE.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

4.4 Maintenance of Campus Infrastructure

4.4.1

Percentage expenditure incurred on maintenance of physical facilities and academic support facilities excluding salary component, during the last five years

Response: 41.62

4.4.1.1 ***Expenditure incurred on maintenance of physical facilities and academic support facilities of DDE and total expenditure excluding salary, year - wise, over the last five years (INR in lakhs)***

2022-23	2021-22	2020-21	2019-20	2018-19
736.84	460.78	276.78	450.18	493.26

File Description	Document
Institutional data in the prescribed format (data template merged with 4.1.2 and 4.2.2)	View Document
Audited income and expenditure statement of the institution to be signed by CA and counter signed by the competent authority (relevant expenditure claimed for maintenance of physical facilities and academic support facilities should be clearly highlighted)	View Document

4.4.2

There are established systems and procedures for maintaining and utilizing physical and academic support facilities – laboratory, library, sports complex, computers, classrooms etc.

Describe policy details of systems and procedures for maintaining and utilizing physical, academic and support facilities within a maximum of 500 words

Response:

Thiagarajar College of Engineering, Madurai strives to maintain academic and physical facilities for better utilization of the available resources and to minimise depreciation of the facilities. Physical facilities are maintained by college estate office and academic facilitiesare maintained by respective head of the department and Librarian.

Laboratory Maintenance

All the facilities in Laboratories are cleaned on daily basis.Necessary equipment is calibrated periodically. Periodical maintenance of equipment is performed regularly on daily / weekly basis while breakdown maintenance is attended immediately in case of failures of the component. Maintenance Register is kept in all laboratories. Internal stock verification is done every year by a committee constituted by the principal and follow up action is taken on the committee's recommendations. All facilities in laboratories are arranged as per 5S policy of our college.

Classroom Maintenance

Classrooms are cleaned and maintained on daily basis. The ICT tools, interactive facilities, LCD Projectors, Lecture Capturing System (Impartus) are available in classrooms. These are maintained by Electronic Support Group (ESG) of the college. Maintenance cell is taking care of civil maintenance, electrical maintenance and housekeeping of classrooms.

Library Maintenance

The college library is classified with different stacks like Science, Humanities, Engineering and Management, Reference Section, Book Bank, daily Newspaper and Periodical Section, Journal Section and competitive examinations. Every Book is supported with RF ID and unique accession number for easy handling and to minimize the time for lending the books to students and faculty members. All books are arranged in respective subject racks.

Sports Complex Maintenance

The Physical Education department maintains the sports complex. All sports facilities like play fields, courts, tracks, gym and indoor stadium are regularly maintained with the help of skilled labours and a marker. The entire sports infrastructure, its stock and maintenance are carried out by them. ical Directress. Tracks and fields are watered and rolled once in a week. Basketball court is cleaned every day and painted every year. Throwball, Volleyball, Ball Badminton Court are watered and marked regularly. Also, the wood dust powders are sprinkled on the Ground surface. Handball, Hockey and Football fields are cleaned, watered and rolled once in a week. Gym equipment is cleaned and lubricated every day. Indoor sports facilities are maintained every day.

Transport Maintenance

Transport department is headed by a Transport Manager. The maintenance works of all Buses and Cars

are taken care of by the Transport department.

House Keeping and Green Initiatives

Housekeeping team of the college is taking care of sweeping around academic buildings, library, hostel and canteen. The trees in our college are numbered and maintained. Other plants are maintained to make the campus green. Other facilities like Canteen, Credit Society, Bank, Stores, etc. are maintained periodically. Reverse Osmosis (RO) treated water is supplied all the building in the College Premises and the maintenance of RO Plant is taken care of by the MDR Cell. Sewage Treatment Plant in the college was maintained by a team of technicians.

Overall, Thiagarajar College of Engineering demonstrates a systematic approach to facility maintenance, ensuring a conducive environment for learning, research, and extracurricular activities.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

Criterion 5 - Student Support and Progression

5.1 Student Support

5.1.1

Percentage of students benefited by scholarships and freeships provided by the institution, government and non-government bodies, industries, individuals, philanthropists during the last five years

Response: 59.41

5.1.1.1 **Number of students benefited by scholarships and freeships provided by the institution, Government and non-government bodies, industries, individuals, philanthropists year wise during last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
2630	1988	2369	3385	2645

File Description	Document
Year-wise list of beneficiary students in each scheme duly signed by the competent authority.	View Document
Upload Sanction letter of scholarship and free ships (along with English translated version if it is in regional language).	View Document
Upload policy document of the HEI for award of scholarship and freeships.	View Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

5.1.2

Efforts taken by the institution to provide career counselling including e-counselling and guidance for competitive examinations during the last five years

Response:

Every academic year, a survey is conducted annually for undergraduate and postgraduate engineering students to improve their educational experience, emphasizing skill development and career path selection. This survey guides students in areas like placement, higher studies, entrepreneurship, research,

and competitive exams, leveraging support from esteemed alumni for tailored assistance towards successful futures.

Strategic categorization and Mentorship Framework:

The College Level and the department level coordinators categorize students into the following four distinct groups based on their interests and aspirations:

1. Placement in IT industries and core companies
2. Pursuing careers in Public Sector Units
3. Aspiring entrepreneurs or those involved in family businesses
4. Individuals aiming for higher studies in India and abroad.

Department-level coordinators are dedicated to providing continuous mentorship and support, ensuring that each student is empowered to achieve their goals with a success rate of 100%. This structured approach ensures a holistic and effective framework for guiding students toward successful career paths.

Career Counselling:

Each department conducts regular career guidance programs with the assistance of alumni to address students' career guidance needs. These webinars, seminars, and events prove highly beneficial in guiding students toward progress in their chosen career paths. Students planning higher studies can use the TCE website's application form for transcripts and recommendation letters. The College Level coordinator oversees the application process, tracking applicants with support from Department level coordinators to collect proof of admission details. Career guidance programs are structured to include expert and alumni mentoring sessions, offering essential support. Orientation sessions deliver domain-specific knowledge, partnering with external providers such as Manya Princeton Review for overseas studies, 2IIM for management education, and Kingmaker IAS Academy for government exam preparation.

Industry Collaboration and Alumni Networks for Career Counselling:

In the student survey, 84.2% highlighted the significant impact of teaching and mentoring on their cognitive, social, and emotional development at our institution. A majority are keen on learning new tools and technologies, facilitated through One Credit courses supported by alumni from various industries. 65% percent of students express that engagement in professional activities serves as motivation for higher studies, placement, and entrepreneurship. More than 50% of students were found to be the members in any one of the institution's Professional Club/Society.

While the majority of students focus primarily on placements, some express interest in competitive exams like GATE, GRE, TOEFL, CAT, GMAT, IELTS, UPSC, TNPSC, etc. Approximately 33% of students express an interest in higher studies and seek guidance on universities and scholarships. Over 60% of students express an interest in qualifying for Civil services, State Government Jobs, and Research positions. Alumni, with experience in these categories, share knowledge and experiences during Alumni Visits and Reunions. Notably, Alumni like Mr.IsaiVanan from the ECE department support UPSC aspirants, and Mr. Jeyaraja from the Mechanical Department assists in connecting students with Alumni mentors for higher studies abroad.

Conclusion:

Overall, institutions invest significant resources in providing holistic career counseling and guidance for competitive examinations to empower students to make well-informed decisions, excel in their chosen fields, and achieve their career aspirations.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

5.1.3

Following capacity development and skills enhancement activities are organised for improving students' capability

1. **Soft skills**
2. **Language and communication skills**
3. **Life skills (Yoga, physical fitness, health and hygiene, self-employment and entrepreneurial skills)**
4. **Awareness of trends in technology**

Response: A. All of the above

File Description	Document
Report with photographs on programmes conducted for awareness of trends in technology	View Document
Report with photographs on programmes/activities conducted to enhance soft skills, Language & communication skills, and Life skills (Yoga, physical fitness, health and hygiene, self-employment and entrepreneurial skills)	View Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

5.1.4

The institution adopts the following for redressal of student grievances including sexual harassment and ragging cases

1. **Implementation of guidelines of statutory/regulatory bodies**
2. **Organisation wide awareness and undertakings on policies with zero tolerance**

3. **Mechanisms for submission of online/offline students' grievances**
4. **Timely redressal of the grievances through appropriate committees**

Response: A. All of the above

File Description	Document
Proof w.r.t Organisation wide awareness and undertakings on policies with zero tolerance	View Document
Proof related to Mechanisms for submission of online/offline students' grievances	View Document
Proof for Implementation of guidelines of statutory/regulatory bodies	View Document
Details of statutory/regulatory Committees (to be notified in institutional website also)	View Document
Annual report of the committee monitoring the activities and number of grievances	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

5.2 Student Progression

5.2.1

Percentage of placement of outgoing students and students progressing to higher education during the last five years

Response: 62.87

5.2.1.1 **Number of outgoing students placed and progressed to higher education during the last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
790	817	696	645	688

File Description	Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

5.2.2

Percentage of students qualifying in state/ national/ international level examinations out of the graduated students during the last five years

(eg: NET/SLET/ Civil Services/State government examinations etc.)

Response: 2.02

5.2.2.1 **Number of students qualifying in state/ national/ international level examinations (eg: NET/SLET/Civil Services/State government examinations etc.) year wise during last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
38	29	22	22	6

File Description	Document
List of students qualified year wise with details of examination and links to Qualifying Certificates of the students taking the examination	View Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

5.3 Student Participation and Activities

5.3.1

Number of awards/medals for outstanding performance in sports/cultural activities at University / state /national / international Level events during the last five years

Response: 84

5.3.1.1 **Number of awards/medals for outstanding performance in sports/cultural activities at University / state / national / international level events (award for a team event should be counted as one) year wise during last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
28	11	8	21	16

File Description	Document
list and links to e-copies of award letters and certificates	View Document
Institutional data in the prescribed format (data template)	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

5.3.2

Presence of an active Student Council & representation of students on academic & administrative bodies/committees of the institution.

Describe the Student Council activity and students' role in academic & administrative bodies within a maximum of 500 words

Response:

Student Council

Student Council Meetings are conducted regularly each semester and twice per academic year, with attendance from the Principal, Deans, Registrar, elected Class Representatives, elected student coordinators for placement activities, Technical Club Coordinators, Department Association Secretaries, NCC, NSS, Sports, Higher studies, and Language Club Coordinators.

This platform allows students to address issues, concerns, and suggestions regarding all aspects of their academic activities, including the Teaching Learning Process, Laboratory facilities, infrastructure setup, and co-curricular and extra-curricular areas such as Placements, student amenities, Technical Clubs, Department Association activities, NCC, NSS, Sports, Cultural Clubs, Transport, and Hostel facilities. Meetings are communicated to all student council members through Circulars and social media, ensuring thorough discussion of points in classrooms beforehand.

Points raised in the Student Council Meetings are categorized into curricular, co-curricular, extracurricular, and other matters, with appropriate faculty or persons assigned to resolve them within a specified time frame. The Principal presents the action taken report from the previous meeting, and members then raise categorized points for discussion. Concerns are well-addressed, and minutes are prepared, with immediate clarification provided by the Principal and authorities during the meeting.

Class Committee Meetings

Class Committee Meetings are conducted three times per semester and annually, attended by the Class Committee chairman, student Representatives, faculty advisors, and the Head of the Department. These meetings serve as platforms to discuss academic issues, share information, and collaborate on class-related matters, fostering a sense of community within the class. The Class Committee chairman updates students on previous meeting actions, with queries addressed by the Head of the Department during the

session, and specific representations communicated for timely response.

Tutor Ward Meetings

Tutor Ward Meetings are also conducted regularly three times per semester and annually. These meetings bring together tutors and their assigned wards (students) to discuss academic progress, address concerns, and provide guidance, aiming to foster supportive relationships. The agenda includes academic performance reviews, personal development discussions, and opportunities for students to seek advice or clarification. The Tutor updates students on previous meeting actions, with queries addressed by the Head of the Department, and specific representations communicated for timely response.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

5.3.3

The institution conducts / organizes following activities:

1. **Sports competitions/events**
2. **Cultural competitions/events**
3. **Technical fest/Academic fest**
4. **Any other events through Active clubs and forums**

Response: A. All four of the above

File Description	Document
Report on Sports, Cultural competitions/events, Technical/academic fests, Any other events through active clubs and forums along with photographs appropriately dated and captioned (whichever is applicable)	View Document
List of students participated in different events year wise signed by the head of the Institution	View Document
Institutional data in the prescribed format (data template)	View Document
Copy of circular/brochure indicating such kind of activities.	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

5.4 Alumni Engagement

5.4.1

Total Amount of alumni contribution during the last five years (INR in lakhs) to the institution through registered Alumni association:

Response: 222.34

5.4.1.1 **Total Amount of alumni contribution during the last five years (INR in lakhs) to the institution year wise through registered Alumni association:**

2022-23	2021-22	2020-21	2019-20	2018-19
82.13229	18.07741	18.05911	65.67635	38.39582

File Description	Document
List of alumnus/alumni with the amount contributed year-wise	View Document
Annual audited statements of accounts of the HEI highlighting the Alumni contribution duly certified by the Chartered Accountant/Finance Officer	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

5.4.2

Alumni contributes and engages significantly to the development of institution through academic and other support system

Describe the alumni contributions and engagements within a maximum of 500 words

Response:

Introduction

Thiagarajar College of Engineering (TCE) Alumni Association operates both at the institute and through its chapters located nationally and internationally. The primary initiatives of TCE Alumni Association include Alumni Scholarships, Alumni Reunions, Personality Development Camps, Mentorship Programs, and fostering Academic and Industrial Interaction facilitated by alumni. TCE Alumni Association plays a pivotal role in enhancing the institution across various areas, including academic excellence, soft skills development, industry interactions, placement opportunities, research support, and outreach programs. The primary goal is to establish effective communication with alumni, fostering

strong bonds of fellowship, professional association, and institutional affiliation. It aims to encourage alumni to maintain active connections and to utilize their resources, talents, and initiatives in advising, guiding, and advocating for the institution to achieve the respective department's missions and goals. Furthermore, the association endeavours to instill a culture of philanthropy among the alumni community.

Alumni Scholarships

Financial assistance is provided to deserving students based on merit. Contributions from alumni are collected and deposited into the corpus fund of the TCE Alumni Charitable Trust. The interest generated from this fund is utilized for student scholarships. Further the donations made to TCEAA are eligible for exemption under Section 80G of the Income Tax Act.

Alumni Reunions

Alumni reunions, including Silver Jubilee and Golden Jubilee, and other milestone reunions, provide opportunities for student recruitment and placement outcomes. These reunions facilitate student-alumni interaction, covering topics such as alumni association, technology trends, and industry insights. They facilitate interaction between students and alumni on topics such as technology trends and industry insights.

Personality Development camps

The institute hosts three-day residential personality development camps annually aimed at instilling crucial soft skills, promoting yoga practice, fostering teamwork, enhancing emotional intelligence, and raising awareness about health among young engineering students. Throughout an academic year, five distinct personality development camps, namely Pinnacle, Orchid, Blossom, Efflorescence, and Zenith, are organized to facilitate holistic growth and personal development among the participants. Approximately 2500 students have benefited and motivated through these camps both in profession and family from the support of alumni who, having graduated from the college, continue to contribute by conducting sessions, coordinating camp activities, and engaging in various roles to enhance the camp experience.

Mentorship Programs

Mentorship Programs aims to guide students in career development, fostering leadership skills and work-life integration. Objectives include cultivating future leaders, offering motivation, and establishing a supportive network extending beyond college. Benefits involve refining leadership skills, providing mentoring and exposure from industry experts, and creating a sustainable framework for collaboration between the College, Alumni, and Students.

Academic and Industrial Interaction by Alumni

Alumni actively contribute to academic and industrial interaction by participating in the Board of Studies and Academic Council, serving as resource persons for credit courses, delivering guest lectures, participating in in-plant training/internships/placements, and contributing to lab development and training initiatives.

Overall, the TCE Alumni Association plays a vital role in fostering a strong bond between the institution and its alumni, while also contributing significantly to the overall development and growth of students and the institution itself through various initiatives and activities.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

Criterion 6 - Governance, Leadership and Management

6.1 Institutional Vision and Leadership

6.1.1

The institutional governance and leadership are in accordance with the vision and mission of the Institution and it is visible in various institutional practices such as NEP implementation, sustained institutional growth, decentralization, participation in the institutional governance and in their short term and long term Institutional Perspective Plan.

Response:

Vision:

World Class Quality Technical Education with strong ethical values

Mission:

- Achieve academic excellence in Science, Engineering and Technology through dedication to duty, commitment to research, innovation in learning and faith in human values.
- Enable the students to develop into outstanding professionals with high ethical standards capable of creating, developing and managing global engineering enterprises.
- Fulfil expectations of the society and industry by equipping students with state of art technology resources for developing sustainable solutions.
- Achieve these through team efforts making Thiagarajar College of Engineering, the socially diligent trend setter in technical education.

NEP Implementation:

the institute is actively implementing the National Education Policy (NEP) through the following strategies

- Awareness programmes through eminent speakers
- In-house TCE MOOCs development
- Faculty Development programmes for curriculum design and teaching learning process
- Skill Development programmes for students by offering industry internship courses, project-based learning courses and inter-disciplinary projects

Sustained Institutional Growth:

In 2020-21, the leadership team launched an Institutional Transformation Initiative project namely ‘Savitha’ to achieve this vision with the involvement of all stakeholders, headed by two senior faculty members. There are 10 strands and each strand was headed by middle level faculty members. Each strand was supported by five junior level faculty members. It led to the following activities/achievements.

- Launch of TCE Online courses
- Smart Classroom for active and collaborative learning in classroom.

- Setting up of Research Council to promote research culture in the institute
- Launch of Thiagarajar Research Fellowship for full time research scholars
- Use of Plagiarism tool namely Urkund/Turnitin for effective documentation
- Webinars on contemporary technologies and Joint Teaching Programmes by reputed faculty from higher learning institutions and industry experts
- Providing solutions to societal issues and challenges by case study and product development through Ideathon contests, using appropriate technology, by Engineers Without Borders (EWB) chapter
- Interaction with reputed Universities for academic collaboration

Decentralization:

The Organizational structure consists of Principal, Deans, Registrar, Heads of the Departments (HoD), Controller of Examinations, Associate Deans, College and department level Coordinators under the leadership of Chairman for effective functioning, as follows:

- Principal: Overall Administration, Alumni Interaction, International/National Collaborations
- IQAC Director: Assessment and Accreditations, Ranking Frameworks
- Dean (Academic Process): Curriculum Design, Content Delivery, Assessment, Automation of Academic Process, Regulations, Academic Calendar
- Dean (Research and Development): PhD Admissions, Academic and sponsored Research, Patents, Library
- Dean (Industry Institute Interaction): Consultancy, Placement/Internship
- Dean (Students): Mentoring, Counselling, Women Development Cell, Professional Societies, Student Clubs, Career Guidance, Entrepreneurship
- Dean (Extra-curricular activities): NCC/NSS, Physical Education, Cultural, Technology based social work
- Dean (Management Information Systems): Maintenance of Data Centre, Institution Website and IT infrastructure
- Registrar: Student Admission, Staff Recruitment, Infrastructure and Finance
- Controller of Examinations: Exam related activities

The academic and administrative activities are being carried out by the respective HoDs following the Standard Operating Procedure set by senior administrators. The Principal and Deans along with HoDs, based on their own experience in academic and research activities, convert them into tangible actions. They are reviewed by the Governing Council of the institute. The Principal discusses the outcomes of Governing Council meetings with the Deans and HODs to evolve a consensus on the focus areas. The academic activities are approved by Academic Council.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

6.2 Strategy Development and Deployment

6.2.1

The institutional perspective plan is effectively deployed and functioning of the institutional bodies are effective and efficient as visible from policies, administrative setup, appointment, service rules, and procedures, etc

Response:

Deployment of Institutional Perspective Plan:

The institutions' major objective is to enhance the institutes' competitiveness at a national and global level and improve its outlook across different stakeholder segments namely Students, Industry, Peers, and Regulators. Two senior faculty members were identified as project champions to implement the action plan in a systematic way. Subsequently, 10 strands were identified and middle level faculty members were assigned as Strand leaders. Each strand leader was assigned with five junior faculty members in this process. The activities are monitored weekly and steering committee meetings are conducted at regular intervals of two months to align the progress in the right path by the Management. The strands are

- Academics and Curriculum: Online courses, smart classroom, Transition Rate
- Student Experience: Tutor Ward System, Alumni Interaction, Career Guidance
- Research Excellence: Academic Research, Sponsored Research, Patents
- Faculty Development: Adjunct Faculty, Faculty Recruitment, Development Programmes
- Academic Collaborations: Webinars, Joint Teaching, Research Internship
- Industry Collaborations: Centre of Excellence, Consultancy, Placement Training, Internship, Placement
- Process and Data Management: Website Revamping, Management Information System
- Branding, Marketing and Outreach
- Infrastructure Management

The methodology adopted to implement strategic plan is:

- As-Is peer benchmarking Analysis
- Target setting from goal setting and stakeholder workshop
- Action plan and implementation roadmap.

Administrative Setup

Internal Quality Assurance Cell (IQAC): provides benchmarks, proposes roadmaps and to monitor the institutional development activities

- Governing Council: The functions of Governing Council are to approve the academic, financial and administrative policies of the institution, to appoint faculty members and staff, to review the annual report & the audited accounts and budget estimates.
- Academic Council: reviews regulations, curriculum and academic processes.
- Research Council reviews research project proposals
- Student Council: Meetings are conducted regularly with the representatives of students to improve the functioning of the institution.

- Board of Studies: reviews the curriculum and syllabus of courses.
- Standing Committee: monitors and recommends the academic administrative and financial matters.
- Department Advisory Committee: reviews and provides direction for continuous improvement of department activities
- Finance Committee: Reviews budget for the departments and college.
- Malpractice Enquiry Committee: handles disciplinary issues
- Building committee: scrutinizes and approves the design estimates, cost of building and other capital works, minor works, repair and maintenance
- IPR Committee: reviews patentable ideas for filing them as patents
- Appeals and Grievances Committee: Any grievances related to Academic matters are addressed by the concerned Tutor, HoD and Principal. When students are not satisfied with the outcome, they represent to the Appeals & Grievances Committee.
- Women Development Cell: Women empowerment activities

Appointment, Service Rules and Procedures:

The faculty and staff members are recruited as per the State Government norms. The selection panel would comprise of subject experts from Institutes of higher learning, nominee from Directorate of Technical Education (DoTE), Tamil Nadu and expert nominee from Southern Region of All India Council for Technical Education. The same process is followed for the recruitment of non-teaching staff and the expert panel consists of Principal and two subject experts nominated by Principal of the College.

File Description	Document
Upload any additional information	View Document
Institutional perspective Plan and deployment documents on the website	View Document
Provide the link for additional information	View Document

6.2.2

Institution implements e-governance in its operations. e-governance is implemented covering the following areas of operations:

1. **Administration including complaint management**
2. **Finance and Accounts**
3. **Student Admission and Support**
4. **Examinations**

Response: A. All of the above

File Description	Document
Screen shots of user interfaces of each module reflecting the name of the HEI	View Document
Institutional expenditure statements for the budget heads of e-governance implementation ERP Document	View Document
Annual e-governance report approved by the Governing Council/ Board of Management/ Syndicate Policy document on e-governance	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

6.3 Faculty Empowerment Strategies

6.3.1

The institution has performance appraisal system, effective welfare measures for teaching and non-teaching staff and avenues for career development/progression

Response:

Performance Appraisal System

The teaching and non-teaching staff members undergo an annual evaluation process. This evaluation encompasses a thorough review of performance appraisal and professional development planning. The performance appraisal, integral to the Personnel Review process, serves several key objectives:

- Fulfillment of College Purpose, Goals, and Objectives: It aids in assessing the degree to which individual faculty members contribute to the college's overarching purpose, goals, and objectives.
- Support for Individual Faculty Development: The evaluation process assists each faculty member in planning and reviewing their content, techniques, and professional development. This ensures ongoing growth and improvement.
- Enhancement of Communication: By incorporating performance appraisal, the evaluation process fosters stronger communication between faculty members and administrators. This dialogue is crucial for maintaining a collaborative and effective working environment.

Eligible Faculty members are asked to submit the self-appraisal form which includes teaching learning process, research practices and administrative responsibilities. After the scrutiny of internal panel of senior faculty members, the applicants undertake interview with external panel members. These external members are usually from the IITs and NITs who evaluate the applicants and also give tips for their career progression. Based on the performance, the Faculty Members are given promotion and annual increments in their pay scale.

Apart from this Performance Appraisal System, the Faculty members are given monetary incentives for

their journal publications in Q1, Q2 and Q3 SCIMAGO Journal Rankings (SJR). Faculty members are also given monetary benefit for the TCE MOOCs development.

Career Advancements

Faculty promotion plan is the official prospectus and guide with the faculty ranks in the order: Assistant Professor, Associate Professor and Professor. Any faculty member with a satisfactory performance review may apply for promotion consideration to another rank after he/she has completed the required years of service for their current rank. Career advancements of administrative staff and lab technicians are carried out regularly.

Teaching Staff Welfare Measures and Avenues for their career development/ Progression

- Sabbatical leave for post-doctoral studies and internship at industries
- Increments in Basic Pay, on completion of Doctoral degree programme.
- Faculty are recognized with the remuneration for coordinating FDPs
- Faculty are given the financial assistance for attending workshops/seminars/conferences
- Prom00otion/career advancement for faculty members is offered as per norms.
- Maternity leave is sanctioned to women faculty members.
- Medical/Accidental claims are facilitated to workforce.
- Incentives are given for Research Publications
- Faculty members are facilitated for filing the Patents.
- Coordinator honorarium are given to faculty who plans and organizes FDPs

Non-Teaching Staff Welfare Measures and Avenues for their career development/ Progression

- All the employees are covered with Health insurance (ESI).
- Awareness workshops on safety and health consciousness.
- Compensation for working on holidays and beyond working hours.
- Staff quarters are for non-teaching staff. Festival
- Advance for Staff members.
- Security personnel are provided with uniform allowance and washing allowance

The workforce is supported by the administration in respect of admission to the engineering programmes for their children, additional medical benefits on a case to case basis. Prescribed EPF is provided to teaching and non-teaching staff members. Faculty and staff have sports contest annually.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

6.3.2

Percentage of teachers provided with financial support to attend conferences/workshops and

towards membership fee of professional bodies during the last five years

Response: 42.48

6.3.2.1 **Number of teachers provided with financial support to attend conferences/workshops and towards membership fee of professional bodies year-wise during the last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
145	42	75	103	115

File Description	Document
Policy document on providing financial support to teachers	View Document
Institutional data in the prescribed format (data template)	View Document
Copy of letter/s indicating financial assistance to teachers and list of teachers receiving financial support year-wise under each head.	View Document
Audited statement of account highlighting the financial support to teachers to attend conferences/workshops and towards membership fee for professional bodies	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

6.3.3

Percentage of teachers undergoing online/ face-to-face Faculty Development Programmes (FDPs)/ Management Development Programmes (MDPs) during the last five years

Response: 54.16

6.3.3.1 **Total number of teachers who have undergone online/ face-to-face Faculty Development Programmes (FDP)/ *Management Development Programs (MDP)* during the last five years**

2022-23	2021-22	2020-21	2019-20	2018-19
91	82	168	141	130

File Description	Document
Refresher course/Faculty Orientation or other programmes as per UGC/AICTE stipulated periods, as participated by teachers year-wise.	View Document
Institutional data in the prescribed format (data template)	View Document
Copy of the certificates of the program attended by teachers.	View Document
Annual reports highlighting the programmes undertaken by the teachers	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

6.4 Financial Management and Resource Mobilization

6.4.1

Institutional strategies for mobilisation of funds other than salary and fees and the optimal utilisation of resources

Describe the resource mobilisation policy and procedures of the Institution within a maximum of 500 words

Response:

Mobilization of Funds

- The institution actively engages in diverse financial avenues to support its multifaceted initiatives. Sponsored Research Projects from various Government bodies and organizations contribute significantly to the institution's research endeavors, fostering innovation and academic excellence.
- Consultancy projects from industries not only provide valuable real-world insights but also serve as a source of financial sustenance.
- The Corporate Social Responsibility (CSR) fund is harnessed to address societal needs, emphasizing the institution's commitment to social impact.
- The generous contributions from alumni play a pivotal role in enhancing student welfare, fostering a sense of community and support.
- The institution emphasizes professional development through the organization of Faculty Development Programmes, Short Term Training Programs (STTPs), Workshops, and Seminars.
- The establishment of Industry Supported Laboratories and Centres of Excellence solidifies collaborations between academia and industry, fostering a dynamic learning environment that aligns with contemporary advancements and technological progress.

Optimal Utilization of Resources

- The institution allocates its financial resources judiciously to ensure a holistic and thriving academic environment. A significant portion is dedicated to providing competitive salaries for faculty and supporting staff members, recognizing their pivotal role in shaping the educational experience.
- Investment in state-of-the-art infrastructure facilitates academic, research, and industry collaboration activities, fostering an environment conducive to innovation.
- Procurement of cutting-edge equipment and software licensing enhances the technological capabilities of the institution, while a well-equipped library and internet/WiFi facilities contribute to comprehensive academic resources.
- The institution places a strong emphasis on student development, offering skill development programs and financial assistance for attending workshops, seminars, and conferences.
- Incentives for research publications and faculty recognition with financial assistance underscore the commitment to scholarly achievements.
- Special initiatives, such as the Thiagarajar Research Fellowship for research scholars and financial support for filing patents, promote a culture of research and innovation.
- Aiding needy students through scholarships, trusts, and alumni contributions, the institution also supports institutional transformation initiatives and process automation to streamline operations.
- Active involvement in co-curricular and extracurricular activities is encouraged, facilitated by the Adjunct Faculty Association and professional societies.
- Recognizing the commitment of various stakeholders, honorariums are provided for Board of Studies, Academic Council, Governing Council, and IQAC members.
- Furthermore, the institution ensures the well-being of retired faculty and support staff through gratuity benefits.
- This comprehensive approach to financial allocation reflects the institution's dedication to fostering a dynamic, inclusive, and progressive learning environment.

File Description	Document
Provide the link for additional information	View Document

6.4.2

Funds / Grants received from government bodies, non-government bodies, and philanthropists during the last five years (not covered in Criterion III and V)

Response: 159.56

6.4.2.1 **Total Grants received from government/non-government bodies, philanthropists year wise during last five years *(not covered in Criterion III and V)* (INR in Lakhs)**

2022-23	2021-22	2020-21	2019-20	2018-19
28.12375	3.86	3.68	19.89953	103.99888

File Description	Document
Institutional data in the prescribed format (data template)	View Document
Copy of the sanction letters received from government/ non government bodies and philanthropists	View Document
Annual audited statements of accounts highlighting the grants received	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

6.4.3

Institution regularly conducts internal and external financial audits regularly

Enumerate the various internal and external financial audits carried out during the last five years with the mechanism for settling audit objections within a maximum of 500 words

Response:

Institution conducts internal and external financial audits regularly

1. **Financial Auditing**: Both internal and external auditing of all financial transactions are conducted periodically, including Local Fund (LF) audit and Goods and Services (GST) audit, to ensure compliance with government norms and guidelines.
2. **Financial Planning**: Annual financial planning is carried out based on budget proposals submitted by respective authorities in the college, taking into account income and expenditure from the previous financial year. Budget allocation is done for each department under various heads, and the prepared budget proposal is approved by the Governing Council.
3. **Financial Activities and Management**: Financial activities are overseen by an accounts manager, and the process is scrutinized by both the management and government auditors (Local Fund and Accountant General).
4. **Internal Financial Auditor**: An internal financial auditor is responsible for suggesting and revising formats based on feedback from students and faculty, in consultation with the Registrar. Utilization of funds is tracked periodically through internal and external finance audits.
5. **Technical Education Quality Improvement Programme of Government of India (TEQIP) Support**: As the college was supported by TEQIP, a World Bank initiative, budget allocation was made for new initiatives such as infrastructure development, curriculum development, faculty development, and industry interaction in accordance with guidelines from the National Project Implementation Unit (NPIU).
6. **GST Compliance**: The college files GSTR1 and GSTR3B as per GST guidelines and remits the GST amount every month, ensuring compliance with taxation regulations.

Internal Audit:

The management takes a proactive step by appointing Certified Chartered Accountants to ensure the meticulous maintenance of accounts. The office accounts are efficiently managed through TALLY ERP, a robust software that guarantees error-free and up-to-date transaction records, facilitating the seamless preparation of financial statements. On an annual basis, internal auditors conduct a thorough scrutiny of the accounts. Subsequently, they prepare the comprehensive annual report and undertake the filing of Income tax returns. This diligent process ensures financial transparency and compliance with regulatory requirements. Moreover, the institution goes a step further in accountability. It submits all relevant documents along with audited utilization certificates for the funds and grants received from the Government and other funding agencies. The college extends this commitment to transparency by submitting the Statement of Accounts to auditors for funds received from both Government and non-Government bodies. This rigorous financial oversight underscores the institution's dedication to fiscal responsibility and adherence to established accounting standards.

External Audit:

External auditors verify and certify the Annual Report of the institution. Additionally, the Accountant General (AG) conducts periodic audits specifically focusing on Government funds. During these visits, the team meticulously audits various aspects, including document verification, procedural formalities, and raising queries. The finalization of the audit report is a comprehensive process undertaken by the team.

Overall, the institution's financial management practices demonstrate a commitment to transparency, accountability, and compliance with both government norms and external funding requirements, contributing to effective utilization of resources for institutional development.

File Description	Document
Upload any additional information	View Document

6.5 Internal Quality Assurance System

6.5.1

Internal Quality Assurance Cell (IQAC)/ Internal Quality Assurance System (IQAS) has contributed significantly for institutionalizing the quality assurance strategies and processes, by constantly reviewing the teaching-learning process, structures & methodologies of operations and learning outcomes, at periodic intervals

Internal Quality Assurance Cell (IQAC) has contributed significantly for institutionalizing the quality assurance strategies and processes visible in terms of –

- **Incremental improvements made for the preceding five years with regard to quality (in case of first cycle)**
- **Incremental improvements made for the preceding five years with regard to quality and post accreditation quality initiatives (second and subsequent cycles)**

Describe two practices institutionalized as a result of IQAC initiatives within a maximum of 500 words

Response:

Practice 1: Industry-Academic Partnership through Industry supported Courses

Bridging Industry-Institute gap requires collaborative efforts between educational institutions and industries to ensure that students receive a well-rounded education that equips them with both foundational knowledge and the practical skills needed for success in the workforce. To bridge this gap, we are inviting subject matter experts from industries to collaborate and deliver topics in contemporary areas. The industry supported courses are jointly designed by the faculty coordinator assigned for the purpose and the industry subject matter expert. Provisions have been made for the industry experts to deliver the content during weekends. Generally, one/ or wo credits are offered for the course duration of 14-16 hours and 28-32 hours respectively. These courses include hands-on practices, demonstrations, real time applications and sharing of industrial experiences.

Way back in 2011, industry supported course was initiated jointly with Tata Consultancy Services (TCS) in Mechanical Engineering for the course entitled “Value Engineering”. This led to lot of interactions with the Company and later it has been institutionalized to other Departments as a best practice. Academic Regulations has been revised for the incorporation of this Best Practice by all Engineering Programmes. Subsequently, many courses have been designed with the industry experts from TCS, IBM, CDAC, Tech Mahindra, Zebra Technologies and Trane Technologies. The Institute defined three different metrics namely number of industry supported courses offered, number of industries involved and number of students benefitted. The challenges and lessons learnt through this activity are discussed in the IQAC review meetings and shared with other Programmes. Benefits are:

- Placements and internships in Core companies
- Industry supported laboratories
- Academic support by industry experts in project reviews

For the past 12 years, this practice has been followed seamlessly across all Departments till date.

Practice 2: Pedagogical Knowledge upgrade for Faculty Development

Our institution dedicated its efforts to institutionalize the pedaagogical teaching experiences acquired through diverse activities, in association with IIT Bombay and IUCEE collaborations. These endeavors included the IUCEE International Engineering Education Certification Programme (IIEECP), the integration of CDIO courses, community outreach initiatives, engineering education research, orchestration of international conferences and workshops, in-house faculty development programs led by Academic Process team members, and proactive engagements with other higher learning institutes. Nineteen faculty members successfully completed the IIEECP, while an additional 38 faculty members accomplished the program's first phase.

The institution also solidified its commitment to engineering-centered, multidisciplinary, community-based design education by becoming a member of Purdue University's Engineering Projects in Community Services (EPICS) Program. The Faculty members who were awarded IIEECP Certificate obtained IGIP degree certificate for advanced studies. These Faculty members also serve as Associate

Faculty members or Mentors for similar programs organized by IUCEE and IIT Bombay. New and young faculty members are given orientation in the active learning strategies and the use of ICT tools. Faculty Conclaves are organized at the Institute level to share the best practices in the teaching learning processes. TCE actively championed Engineering Education Research (EER) and published papers in each year in the refereed journals, in the teaching learning domains including instructional design models, content delivery and assessment techniques.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

6.5.2

The institution reviews its teaching learning process, structures & methodologies of operations and learning outcomes at periodic intervals through IQAC set up as per norms

Describe any two examples of institutional reviews and implementation of teaching learning reforms facilitated by the IQAC within a maximum of 500 words each.

Response:

Insitutional Review 1 - Course File Audit:

Course file audit, a systematic examination of documentation related to an academic course, ensures that it aligns with established standards, meets regulatory requirements, and adheres to institutional policies. This comprehensive review encompasses various elements within the course files, providing a thorough evaluation of curriculum design, instructional materials, assessment strategies, and other relevant components. This audit covers the following aspects;

- Curriculum Alignment - The audit assesses the alignment of course objectives, content, and assessments to ensure coherence and consistency with program and institutional goals. This involves confirming that the course content reflects present industry standards and educational best practices.
- Assessment Strategies - Evaluating the effectiveness of assessment methods and tools is a crucial aspect of the audit. This includes scrutinizing the diversity of assessment types, their relevance to learning outcomes, and the appropriateness of grading criteria.
- Resource Utilization - The efficient use of instructional resources is examined to determine if the course has access to appropriate materials, technology, and support services necessary for optimal learning experiences.

The audit also identifies areas for improvement, ensuring that courses maintain high educational standards and meet the criteria set by accrediting bodies like NBA and NAAC, thereby enhancing the institution's overall standing. This audit promotes a culture of continuous improvement by addressing weaknesses and implementing enhancements based on audit findings. It also demonstrates the

institution's commitment to transparency and accountability in educational delivery.

The IQAC conducts Course File audit annually for all the Departments. Course file is maintained by the Course Faculty members for each course. The course file includes Department vision, mission, approved syllabus, course contents, test question, question to CO mapping, scheme of evaluation, assignment questions, sample answer scripts, test performance analysis, course exit survey, CO attainment, and Course Faculty feedback report. IQAC involves senior Faculty members and Programme Coordinators for the audit. IQAC prepares the audit schedule and informs the Head of the Departments about the audit in prior. Syllabus coverage, content delivery methods, quality of assessment and rubrics used in courses are audited. Comments and suggestions for improvement are provided for the course coordinators.

Institutional Review 2 - Programme Performance Assessment Committee (PPAC) Review:

PPAC Composition

includes HoD, Programme Coordinator, BoS Coordinator and three Faculty members

PPAC Activities

- Assessment of the attainment of Course Outcomes (COs), Program Outcomes (POs) and Program Specific Outcomes (PSOs)
- Audit of the internal test question papers and assignments with respect to the COs
- Analysis of students' feedback for the courses
- Evaluation of the program effectiveness
- Proposal for necessary changes for continuous improvement

Roles and Responsibilities of PPAC

- Every Faculty Member - CO Measurements for the courses offered in the semester, Question Papers for CAT, Assignments or any other relevant activities, Feedback Analysis, with respect to Course Outcomes and action plan for improvement
- PPAC Member - Consolidated Report on CO attainment, Intermediate PO and PSO Calculation, Final PO and PSO Calculation in Even Semester

The discussions like new proposals, suggestions or comments made in the PPAC meeting will be presented in the Board of Studies Meeting by the Programme Coordinator for continuous improvement

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

6.5.3

Institution has adopted the following for Quality assurance*:*

1. **Academic and Administrative Audit (AAA) and follow up action taken**
2. **Conferences, Seminars, Workshops on quality conducted**
3. **Collaborative quality initiatives with other institution(s)**
4. **Orientation programme on quality issues for teachers and students**
5. **Participation in NIRF and other recognized ranking like Shanghai Ranking, QS Ranking Times Ranking etc**
6. **Any other quality audit recognized by state, national or international agencies**

Response: A. Any 5 or more of the above

File Description	Document
Quality audit reports/certificate as applicable and valid for the assessment period	View Document
NIRF report, AAA report and details on follow up actions	View Document
List of Collaborative quality initiatives with other institution(s) along with brochures and geo-tagged photos with caption and date	View Document
Link to Minute of IQAC meetings, hosted on HEI website	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

Criterion 7 - Institutional Values and Best Practices

7.1 Institutional Values and Social Responsibilities

7.1.1

Institution has initiated the Gender Audit and measures for the promotion of gender equity during the last five years.

Describe the gender equity & sensitization in curricular and co-curricular activities, facilities for women on campus etc., within 500 words

Response:

Introduction:

The institution is committed in promoting gender fairness and providing equal opportunities for growth and development to both genders. Equal opportunity is provided to both boy and girl students, as well as men and women staff members, for their growth and development. About 40% of the faculty members are women and about 40% of the students are girls. Women staff members represent various committees and decision-making bodies. Five women faculty members hold higher positions such as Deans and Head of Departments.

Curricular Aspects for gender equity and sensitization

The topics namely ‘Scheme of the fundamental rights to equality’, ‘Scheme of fundamental to certain freedom under article 19’ and ‘Scope of the right to live and personal liberty under article 21’ are included in the course Constitution of India. This course is a common course for all undergraduate engineering students.,

Co-Curricular Aspects:

1. Girl students hold various positions in professional societies and Department Student Associations.
2. Both girl and boy students lead teams in various contests and hackathons.
3. Institutional Awards are given separately for boys and girls in various categories every academic year.
    - Best Outgoing Student,
    - Excellence Award
    - Best Outgoing NCC Cadet,
    - Best Outgoing NSS Volunteer,
    - Best Outgoing Sports Person
    - Best Outgoing Fine Arts Student
4. Women Development Cell (WDC) organizes webinars on various topics like sustainable livelihood opportunities, healthy living, and prevention of sexual harassment. Further, anti-sexual harassment committee functions within the college to prevent sexual harassment.

Facilities for Women on Campus:

1. **Hostel Facilities:**
   - Separate and secured hostels are available for girl students within the campus.
2. **Facilities for Security Measures:**
   - CCTV cameras are installed at strategic points on campus.
   - The entire campus, including buildings and hostels, is monitored 24/7 by security personnel.
3. **Health Facilities:**
   - Dispensary and ambulance facilities are available on campus for any health issues or emergencies.
   - Separate common rooms are available for girl students.
4. **Counseling and Support Services:**
   - Separate counseling rooms are available for boy and girl students.
   - Tutor-ward system is employed to address student issues in all aspects, including academic development, career growth, personal improvement, and social development.

Overall, these initiatives demonstrate a comprehensive approach by TCE towards promoting gender fairness, ensuring safety, and supporting the holistic development of its students and staff members.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

7.1.2

The Institution has facilities for alternate sources of energy and energy conservation measures
1. Solar energy
2. Biogas plant
3. Wheeling to the Grid
4. Sensor-based energy conservation
5. Use of LED bulbs/ power efficient equipment
6. Wind mill or any other clean green energy

Response: A. Any 4 or more of the above

File Description	Document
Permission document for connecting to the grid from the Government/ Electricity authority	View Document
Geo-tagged photographs of the facilities.	View Document
Bills for the purchase of equipment’s for the facilities created under this metric	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

7.1.3

Describe the facilities in the Institution for the management of the following types of degradable and non-degradable waste (within 500 words)

- **Solid waste management**
- **Liquid waste management**
- **Biomedical waste management**
- **e-Waste management**
- **Waste recycling system**
- **Hazardous chemicals and radioactive waste management**

Response:

The management of solid waste, liquid waste, chemical waste and e-waste is performed systematically as per the regulation acts. The institution implements the waste management procedure effectively through waste segregation and recycling of the waste. To reduce the generation of waste within the institute, students and staff are educated to follow the right and proper practices by conducting Seminars and various programs.

A. Solid Waste Management

Solid wastes generated within the campus is collected and segregated using color-coded dustbins and kept at various locations namely Class room Buildings, Rest Rooms, Seminar Halls, Auditorium, Library, Main Building, Offices, Indoor Auditorium and Canteen etc.). The collected wastes are transported to disposal site. Wastes like papers, tin, glass, metals and plastic are given for recycling to external agencies. An agreement with MM forging for the disposal of waste was made in 2021.

A work was carried out by Dr. R. Vasudevan and his team for utilizing waste plastics for flexible pavement. The biodegradable food and human waste from the hostel is mostly segregated and the wastes are fed into biogas decomposer tank for fermentation process to produce biogas, which is used for cooking purpose in the hostel.

B. Liquid Waste Management

Liquid wastes from various points of originations like washrooms, canteen, and laboratories are collected through proper canals, and are disposed to sewage treatment plant without stagnation. Two sewage treatment plants are continuously in operation.

C. e-Waste Management

Government approved vendors are involved in the proper disposal of the E-waste as per the Government rule. E-wastes such as electronic components/unused computers/ UPS/ batteries/ printers,etc., are collected and handed over to external Government approved agencies to recycle the materials. Used, aged and faulty electronic items are condemned from computers and allied Laboratories. Red colour bins are used to collect electronic wastes and dumped in the E-waste corner.

D. Waste Recycling System

The fundamental principle of the institution in waste recycling system is the implementation of the 3R's-Reduce, Reuse, and Recycle. The institution has taken steps to reduce the use of plastics by using posters/signage/awareness programs to avoid plastic in the campus.

The plastic waste collected is reused for paving plastic-tar road in the campus.

Food wastes from hostel mess are reused to feed biogas plant. The biogas is used as fuel in the kitchen of the hostel mess. The waste water (black water) from wash rooms, toilets, water cooler, etc. is collected in the STPs and treated both by aerobic and anerobic process.

The treated waste water from sewage treatment plants is used for gardens, using sprinklers. RO reject waste water is used for cleaning vessels and in toilets.

E. Hazardous chemicals and radioactive waste management

Standard Operating Procedures are followed for the disposal of hazardous chemicals collected from the laboratories. Hazardous wastes are treated by chemical, thermal, biological, and physical methods. Dilution, evaporation and filtration are the general methods of disposing.

These steps collectively aim to sustain an eco-friendly campus environment by effectively managing various types of waste generated within the institution.

File Description	Document
Relevant documents like agreements/MoUs with Government and other approved agencies	View Document
Geo-tagged photographs of the facilities	View Document
Any other relevant information	View Document

7.1.4

Water conservation facilities available in the Institution:

1. **Rain water harvesting**
2. **Borewell /Open well recharge**
3. **Construction of tanks and bunds**
4. **Waste water recycling**
5. **Maintenance of water bodies and distribution system in the campus**

Response: A. Any 4 or more of the above

File Description	Document
Green audit reports on water conservation by recognised bodies	View Document
Geo-tagged photographs of the facilities	View Document
Bills for the purchase of equipment's for the facilities created under this metric	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

7.1.5

Green campus initiatives include

Describe the Green campus initiative of the institution including Restricted entry of automobiles, Use of Bicycles/ Battery powered vehicles , Pedestrian Friendly pathways , Ban on use of Plastic, landscaping with trees and plants etc in 500 words

Response:

Introduction:

The Institution has taken all initiatives to practice environment friendly activities through energy conservation, material conservation, water conservation and quality (air and water) conservation. Eco-friendly practices are implemented to sustain green campus through restricted entry of automobile vehicle, encouraging the use of bicycle / electric vehicle, promoting mass transport, providing pedestrian friendly pathway, Avoiding plastic, use of energy efficient fans /LED lights, solar energy, biogas application etc.

1. **Restricted Entry of Automobiles**:
   - Implementation of a policy to control, stop, or guide the entry of outside vehicles into the campus. Security personnel stationed at the entrance to assist in enforcing the policy.
   - Provision of sufficient transportation spaces and parking areas for students and staff with designated parking zones for two-wheelers and four-wheelers.
   - This enables the stakeholders feel comfortable and enjoy the less polluted environment within the campus
2. **Use of Bicycles and Battery-Powered Vehicles**:
   - Promotion of bicycle and electric vehicle usage among students and staff.
   - Identification of separate parking areas equipped with stands for bicycles and EVs.
3. **Pedestrian-Friendly Pathways**:
   - Restriction of vehicle entry within the campus to ensure safe pedestrian pathways.
   - Assignment of security personnel at turns and crossings to assist pedestrians.
   - Improvement of pedestrian visibility, queuing areas, and provision of sidewalk amenities and landscaping.
4. **Ban on Use of Plastics**:

- Initiatives to maintain a green campus/plastic-free zone.
- Conducting sensitization programs, rallies, and webinars to promote the avoidance of plastics.
- Display of awareness programs through signage/posters emphasizing "Avoid Plastics" and promoting a "No Tobacco" (Smoking-free Campus) environment.

5. **Landscaping with Trees and Plants**:
   - Maintenance of a vast landscaped area in front of the main building.
   - Cultivation of various tree species, including rare and medicinal trees, within the college and hostel premises.
   - Numbering of trees and provision of their names on the website for identification and awareness.

These initiatives collectively contribute to the institution's goal of practicing environmentally friendly activities and sustaining a green campus environment through energy, material, and water conservation, as well as air and water quality conservation.

File Description	Document
Policy document on the green campus/plastic free campus	View Document
Geo-tagged photographs/videos of the facilities	View Document
Circulars and report of activities for the implementation of the initiatives document	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

7.1.6

Quality audits on environment and energy are regularly undertaken by the institution

The institutional environment and energy initiatives are confirmed through the following

1. **Green audit / Environmental audit**
2. **Energy audit**
3. **Clean and green campus recognitions/awards**
4. **Beyond the campus environmental promotion and sustainability activities**

Response: A. All of the above

File Description	Document
Report on environmental promotion and sustainability activities conducted beyond the campus with geo-tagged photographs with caption and date.	View Document
Policy document on environment and energy usage Certificate from the auditing agency	View Document
Green audit/environmental audit report from recognized bodies	View Document
Certificates of the awards received from recognized agency (if any).	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

7.1.7

The Institution has Differently-abled (Divyangjan) friendly, barrier free environment

Write description covering the various components of barrier free environment in your institution in maximum of 500 words

- **Built environment with Ramps/lifts for easy access to classrooms**
- **Divyangjan friendly washrooms**
- **Signage including tactile path, lights, display boards and signposts**
- **Assistive technology and facilities for Divyangjan accessible website, screen-reading software, mechanized equipment**
- **Provision for enquiry and information: Human assistance, reader, scribe, soft copies of reading material, screen reading**

Response:

Introduction:

Thiagarajar College of Engineering (TCE) ensures that persons with disabilities enjoy the right to equality, life with dignity and respect for his or her integrity equally with others in the campus. It also ensures inclusion and effective access to education, health, vocational training by providing a continuum of educational options, learning aids and tools, mobility assistance, support services etc. are being made available to students with disabilities.

Barrier-free environment

Barrier-free environment enables people with disabilities to move about safely and freely, and use the

facilities within the built environment. TCE provides an environment that supports the independent functioning of individuals so that they can participate without assistance.

A Ramps and Lifts

In TCE, all academic blocks are constructed with ramp facility so that differently abled students and other stakeholders visiting the campus can freely move and access classrooms, laboratories, rest rooms, staff and HOD cabins etc. Lift and wheel chair facilities are also established in the main building. Separate parking place is also provided for their comfort.

B Differently abled-friendly washrooms

The washroom facilities are provided for differently abled students and stakeholders in the ladies rest room and B-Block for girls and boys respectively. The washroom is designed as per the standard size to accommodate the differently abled person comfortably. The grab bars are fitted to the walls on either side. Extra care is given to maintain washroom clean and neat. Signage for differently abled person is on the door for the easy access and to avoid the use by other people.

C Signage including tactile path, lights, display boards and signposts

Signposts and display boards are provided in the entire campus to assist the differently abled stakeholder and the person accompanying them. Signpost for ramp, way to lift, parking for differently abled students are fitted at the right place for making them comfortable at access the places.

D Assistive technology and facilities for persons with disabilities: accessible website, screen-reading software, mechanized equipment.

Though TCE has no visually impaired student at campus, we provide access to Non-Visual Desktop Access (NVDA) screen reader for visually impaired challenged person. NVDA is free screen reader can a be installed in any computer. NVDA allows blind and vision impaired people to access and interact with the Windows operating system and many third-party applications. The screen reader facility is arranged in the Main Library of the institution.

E Provision for enquiry and information: Human assistance, reader, scribe, soft copies of reading materials, screen reading.

Though no differently abled student has not so far utilized the facilities of obtaining the assistance for reading, / scribing etc., we provide the human assistance for scribe or read facilities for writing the examination.

These initiatives aim to create an inclusive environment where persons with disabilities can access educational facilities, move around independently, and participate in daily activities with dignity and ease. TCE's commitment to providing a barrier-free environment underscores its dedication to equality and accessibility for all individuals within its campus community.

File Description	Document
Upload any additional information	View Document
Provide the link for additional information	View Document

7.1.8

Describe the Institutional efforts/initiatives in providing an inclusive environment i.e., tolerance and harmony towards cultural, regional, linguistic, communal socioeconomic and such other diversities (within 500 words).

Response:

Promoting Tolerance and Harmony at Thiagarajar College of Engineering (TCE)

Student Platforms

Thiagarajar College of Engineering (TCE) is committed to nurturing an inclusive environment where diversity is celebrated, and harmony is upheld. The institution provides numerous platforms for students to engage in activities that promote tolerance, understanding, and cultural appreciation. These platforms include the National Cadet Corps (NCC), National Service Scheme (NSS), Youth Red Cross, Math Club, and IoT Club. Through participation in these organizations, students have the opportunity to interact with peers from diverse backgrounds, fostering mutual respect and understanding.

Celebration of National and International Events, Days, and Festivals

TCE organizes a plethora of events and celebrations throughout the academic year, aimed at commemorating national and international occasions while promoting unity and inclusivity. These celebrations serve as platforms for students to come together, celebrate diversity, and deepen their understanding of various cultures. Some of the notable events include:

- Independence Day Celebration
- Teachers' Day Celebration
- Ayutha Pooja Celebrations
- Republic Day Celebration
- Women's Day Celebration

These events not only honor significant milestones but also provide opportunities for students to showcase their talents, cultural heritage, and creativity.

Awareness Programs on Various Days

In addition to celebratory events, TCE conducts awareness programs on various days to highlight important societal issues and promote meaningful dialogue among students. These programs address a wide range of topics, including environmental conservation, energy efficiency, gender equality, and social justice. By raising awareness and fostering discussion, TCE aims to empower students to become agents of positive change in their communities. Some of the notable awareness programs include:

- World Environment Day (05.06.2020, 05.06.2021, 02.06.2023)
- National Energy Conservation Day (11.12.2021)
- Women's Day (8.3.2021, 17.03.2023)
- International Plastic Bag Free Day (03.07.2021)
- Education Development Day (26.07.2021)
- National Mathematics Day (22.12.2021)
- World Water Conclave (28.3.2021)
- Sadbhavana Diwas (20.08.2021)
- Social Justice Day (17.09.2021)

Through these initiatives, TCE fosters a culture of empathy, understanding, and social responsibility among its student body. By actively participating in these events and programs, students not only broaden their perspectives but also develop the skills and values necessary to contribute positively to a diverse and interconnected world.

In conclusion, Thiagarajar College of Engineering's commitment to promoting tolerance and harmony is evident through its diverse array of initiatives and events. By providing platforms for student engagement, celebrating diversity, and raising awareness about important societal issues, TCE creates a vibrant and inclusive campus community where all members are valued and respected. Through these efforts, TCE nurtures the next generation of leaders who are equipped to navigate complex global challenges with empathy, compassion, and cultural sensitivity.

File Description	Document
Supporting documents on the information provided (as reflected in the administrative and academic activities of the Institution)	View Document

7.1.9

Sensitization of students and employees of the Institution to the constitutional obligations: values, rights, duties and responsibilities of citizens

Describe the various activities in the Institution for inculcating values for being responsible citizens as reflected in the Constitution of India within 500 words.

Response:

Societal Responsibility and Citizenship at Thiagarajar College of Engineering

Curriculum Offerings

Thiagarajar College of Engineering (TCE) stands firm in its commitment to instill values of societal responsibility, citizenship, and empowerment among its students. The institution's curriculum reflects

this dedication through specialized courses aimed at fostering a deeper understanding of these principles. For undergraduate students, courses such as "Constitution of India," "Essence of Indian Traditional Knowledge," and "Environmental Science" are offered, providing a comprehensive framework for understanding the social, cultural, and environmental fabric of the nation. Furthermore, postgraduate students are engaged through a dedicated "Value Education" course, ensuring that the ethos of responsible citizenship permeates across all levels of education at TCE.

Events and Celebrations

TCE actively organizes events and celebrations to reinforce the importance of constitutional obligations and national pride among its students and staff. Key national occasions such as Independence Day, Republic Day, and National Voter's Day are commemorated with fervor, serving as platforms for educating participants about their rights and duties as citizens. Notably, events led by the National Cadet Corps (NCC) cadets emphasize values like freedom, independence, and patriotism. Additionally, Teachers' Day is observed annually, underscoring the invaluable contributions of educators in shaping responsible citizens of tomorrow.

Human Life and Well-being Initiatives

Recognizing the sanctity of human life, TCE prioritizes initiatives aimed at promoting health, safety, and the preservation of national assets. Through awareness programs and webinars, the institution educates individuals about disaster preparedness, health maintenance, and safety protocols. Events such as International Yoga Day, helmet awareness campaigns, and food safety programs underscore TCE's commitment to holistic human well-being.

Environmental Stewardship

TCE is deeply committed to environmental stewardship and sustainability. Through various events and initiatives, including Social Justice Day, International Plastic Bag Free Day, World Environment Day, and Women's Day celebrations, the institution highlights the importance of environmental conservation and gender equity. The TCE Environmental Information System (ENVIS) Centre plays a pivotal role in championing environmental sustainability through awareness programs and webinars, engaging both students and the broader community in efforts to safeguard our planet.

Community Engagement and Collaboration

Collaborations with governmental bodies enable TCE to extend its impact beyond the campus walls. Initiatives such as drug prevention programs and blood donation camps exemplify the institution's commitment to community welfare and social responsibility. The active involvement of National Service Scheme (NSS) volunteers and Youth Red Cross (YRC) student members further amplifies TCE's contributions to societal betterment, earning recognition for their exemplary service and dedication.

Conclusion

In conclusion, Thiagarajar College of Engineering's multifaceted approach to societal responsibility and citizenship encompasses academic offerings, events, and community engagement initiatives. Through a holistic framework that integrates education, awareness, and action, TCE strives to cultivate responsible citizens who are equipped to address the challenges of the modern world with compassion, integrity, and

a commitment to the greater good.

File Description	Document
Details of activities that inculcate values necessary to nurture students to become responsible citizens	View Document

7.1.10

The Institution has a prescribed code of conduct for students, teachers, administrators and other staff and conducts periodic programmes in this regard.

1. **The institutional Code of Conduct principles are displayed on the website**
2. **There is a committee to monitor adherence to the institutional Code of Conduct principles**
3. **Institution organizes professional ethics programmes for students, teachers, administrators and other staff**
4. **Annual awareness programmes on Code of Conduct are organized**

Response: A. All of the above

File Description	Document
Report on the student attributes facilitated by the Institution	View Document
Policy document on code of ethics.	View Document
Handbooks, manuals and brochures on human values and professional ethics	View Document
Document showing the Code of Conduct for students, teachers, governing body and administration as approved by the competent authority.	View Document
Constitution and proceedings of the monitoring committee.	View Document
Circulars and geo-tagged photographs with date and caption of the activities organized under this metric for teachers, students, administrators and other staff	View Document
Provide Links for any other relevant document to support the claim (if any)	View Document

7.2 Best Practices

7.2.1

Describe two best practices successfully implemented by the Institution as per NAAC format provided in the Manual

Response:

Best Practice 1:

Title: Skill Development Programmes for Students

Objective:

The primary of goal of Skill Development Programmes is to empower and equip students with a diverse set of essential skills including problem solving and team building, to foster comprehensive personal and professional development.

Context

Conceive-Design-Implement-Operate (CDIO) framework based curriculum was introduced in the academic year 2018-19 at our institute to build socially responsible and professionally skilled graduates. This created an environment to implement innovative ideas through professional society and entrepreneurship development cell activities.

Practice

- Align the curriculum with industry requirements, providing students with hands-on experience and exposure to the latest tools, technologies, and practices in their respective fields.
- Equip students with the skills and knowledge demanded by the contemporary job market, ensuring they are well-prepared for a seamless transition from academia to the professional realm
- Cultivate a culture of innovation, critical thinking, and creativity among students, enabling them to tackle real-world challenges with inventive solutions
- Focus on improving communication, teamwork, and interpersonal skills to enhance students' ability to collaborate effectively in diverse work environments.
- Encourage an entrepreneurial mindset by instilling business acumen, risk-taking ability, and problem-solving skills, empowering students to explore entrepreneurial ventures and contribute to economic growth
- Develop leadership qualities and management skills, foster a culture of continuous learning and adaptability, encourage them to stay abreast of emerging trends and technologies throughout their professional careers
- Promote a sense of social responsibility and ethical decision-making, emphasizing the importance of contributing positively to society and the community.
- Provide guidance and support for career planning, helping students identify and pursue their career goals through personalized development plans and mentorship programs.

Evidence of Success:

- Winners in many technical contests like Smart India Hackathons, Codathons and Design contests
- Improvement in Placements in Core Companies
- Participation in Indo Universal Collaboration for Engineering Education (IUCEE) Engineers Without Border (EWB) Student chapter for community projects

Problems Encountered and Resources Required

- Productizing the idea to the next level
- Patenting the ideas

7. Notes

Additional Information: https://tce.edu/student/professional-societies/ietsc

Best Practice 2

1. Title: TCE Online Courses

2. Objective of the Practice: Online courses assist in making the teaching learning process more student-centered and more-innovative. Online learning can promote creativity, critical thinking, collaborations and communication along with flexible pedagogies catering to the personalized needs of the learners. Having understood the advantages of online teaching, structured approaches for online instructional design, and as a part of NEP implementation at the Institute, TCE Online courses are created with the following objectives:

- To create a customized learning repository of value added courses for Engineering Programmes which can be accessed anywhere and at anytime
- To showcase the technical expertise of the Institution’s teaching fraternity to the neighbouring institutes
- To create opportunities for interdisciplinary and self-learning beyond regular academic hours
- To provide exposure on the state-of-art technologies to learners

3. Context: As a member of the Worldwide CDIO Initiative, our institute has been actively practicing a CDIO-based curriculum since the academic year 2018-19. In line with our commitment to fostering an effective learner-centric environment, encouraging interdisciplinary learning, and facilitating skill development in recent technologies, the academic process introduced new initiatives in the year 2020-21, with a specific focus on developing online courses. The need interdisciplinary learning through online courses has also been emphasized in NEP 2020.

4. Practice: The institute developed a Standard Operating Procedure (SOP) to guide the design and development of online courses. This SOP serves as a framework to ensure the quality and effectiveness of the online learning experience.

To equip course coordinators with the necessary skills, capacity-building workshops were organized at regular intervals. These workshops focused on developing competencies in creating interactive videos and designing high-quality assessments suitable for online delivery.

The institute provided the required infrastructure, including a digital studio, along with technical support

for recording and video editing, facilitating the rapid development of online courses.

The course contents underwent regular reviews by an expert team, peers, and alumni to ensure their relevance, accuracy, and alignment with the learning objectives.

5. Evidence of Success: In the initial phase of implementation, 11 online courses were launched, attracting enrolment from 850 students. The success is evident in the positive response and participation of students in these online learning modules. In the second phase, 9 more courses were released and 400 more students registered for them.

6. Problems Encountered and Resources Required: The initiative encountered challenges related to video editing to suit the needs of online courses and the requirement for additional storage space to accommodate the growing library of videos. The efficient resolution of these challenges is crucial for the seamless continuation and expansion of the TCE Online Courses initiative.

The success of the practice underscores the importance of investing in resources such as advanced video editing tools and increased storage capacity to further enhance the quality and accessibility of online courses. The commitment to overcoming these challenges will contribute to the sustained success and growth of the TCE Online Courses initiative.

7. Notes

Additional Information: https://tce.edu/tce-mooc

7.3 Institutional Distinctiveness

7.3.1

Portray the performance of the Institution in one area distinctive to its priority and thrust within 1000 words

Response:

Implementation of CDIO Curriculum

In the academic year 2018-19, our institution undertook a significant initiative to enhance institutional distinctiveness through the implementation of the Conceive Design, Implement and Operate (CDIO) Curriculum. Having attained autonomous status from the University Grants Commission (UGC) in 1987, we were granted the flexibility to craft an innovative curriculum, content delivery, and assessment methods in accordance with the guidelines set by AICTE and the Affiliating University.

As a pivotal step in the teaching and learning process, we introduced a competency-based curriculum and incorporated Blooms taxonomy based course learning outcomes assessment methodologies in 2008. Recognizing the imperative of Outcome-Based Education (OBE) for accrediting Engineering Programs in India, the curriculum underwent suitable modifications in 2014. Despite being designed based on the OBE framework, the existing undergraduate program curriculum exhibited a relative lack of emphasis on

hands-on practices, design thinking and interpersonal skills. Cognitive aspects were addressed more comprehensively than affective and psychomotor domains. Consequently, industries identified a gap in the abilities of graduating students, who, while technically proficient, lacked crucial skills for real-world engineering situations.

To bridge this gap and to align with global requirements for professional engineers, we introduced the CDIO curriculum. Our exposure to the 11th International CDIO conference in Chengdu, China, highlighted that a CDIO-based curriculum is organized around disciplines, with CDIO activities interwoven. These activities encompass projects, internships in industry, and active learning in both theory and practical courses, utilizing state-of-the-art laboratories as workspaces. The CDIO framework, recognized worldwide and aligned with the Washington Accord graduate attributes, motivated us to experimentally introduce Engineering Design and Capstone courses in our OBE curriculum.

While these courses positively impacted Graduate Attributes or Programme Outcomes and student engagement, transitioning from the existing model to the CDIO framework posed challenges. Interactions with faculty members at CDIO international conferences and Asian Regional meetings revealed the complexities of implementing the CDIO framework for the first time in a country. However, with strong support from the administration and unwavering commitment from the faculty members, we gained confidence in pioneering the CDIO curriculum in India. From the academic year 2018-19, we adopted the CDIO syllabus across all seven undergraduate engineering programs. These courses, including Engineering Exploration, Design Thinking, Project Management, System Thinking, Engineering Design Project, Capstone Design Project, and Major Project, articulate course outcomes by integrating knowledge, skill, and attitude domains of learning.

Introduction of Design Thinking course in all Engineering Programmes

The implementation of the Design Thinking course represents a pivotal step in achieving the major objective of any engineering program – producing graduating engineers with the ability to conceive, design, implement, and operate complex, value-added engineering systems in a modern team-based environment. In response to the evolving needs of students and faculty, the Engineering Design course in the previous curriculum was transformed into the Design Thinking course.

Initially, the Engineering Design course engaged students in developing prototypes addressing themes such as smart cities, fostering enthusiasm and innovative thinking. Faculty members handling the course expressed a need for training in project-based learning. In response, a training program on Design Thinking, with a human-centered design approach, was conducted for twenty faculty members. The training, offered by Purdue University in collaboration with Indo-Universal Collaboration for Engineering Education (IUCEE), aimed at enhancing the capacity of the institution.

The modified Design Thinking course, rooted in the Engineering Projects in Community Services (EPICS) design process, focuses on problem identification, specification development, and conceptual design phases. In the academic year 2019-20, the course was offered to 880 undergraduate students across various engineering programs. Notably, 164 conceptual prototypes addressing real-world, location-specific community problems emerged from the course.

To gauge the impact, a study analyzed students' engagement in the course, linking it to perceptions of learning experiences and professional skills in 21st-century skills such as creativity, critical thinking, collaboration, and communication. An institutional survey, utilizing a 4-point Likert scale, measured the

effectiveness of the course, focusing on learning experiences, team dynamics, professional communication, and assessment. The satisfaction index improved, primarily due to experiential learning, and rubrics for periodic reviews effectively assessed personal and interpersonal skills.

The course's emphasis on 21st-century skills motivated students to elevate their prototypes, participating in national-level contests like Smart India Hackathon and IUCEE EPICS Design contests, earning recognition and rewards. The faculty's enriched competence in mentoring students with a human-centered approach garnered faculty awards, including IUCEE's Transformational Award for Leadership in Community Project-Based Learning (CPBL) in 2019.

Continual improvement is underway based on feedback from faculty and students. Refinements in the pedagogy of the Design Thinking course are being implemented, and the experience gained is guiding the development of an interdisciplinary team management process. This ongoing commitment to enhancement ensures that the Design Thinking course remains a dynamic and impactful component of the engineering education curriculum.

Faculty Training on CDIO Standards, Principles and Requirements

To ensure the effective integration of CDIO principles into the curriculum, a series of in-house training workshops have been planned for faculty members. The training programs, led initially by internal CDIO experts, targeted selective faculty members from various departments. These trained faculty members played a crucial role in transferring knowledge within their respective Departments.

Recognizing the need for intensive workshops to enhance Faculty competence in CDIO, a series of CDIO training workshops were organized during May-July 2020. These workshops followed the typical structure of Faculty Development Programs (FDPs), incorporating outcome-based content, assessment activities to measure outcomes, and analysis of feedback to gain insights. The two major objectives of these workshops were to enable participants to design theory courses with suitable content, delivery methods, and assessment in the CDIO curriculum, and to incorporate necessary changes in laboratory courses with respect to the CDIO framework.

Conducted in three batches with the topic "Design of CDIO curriculum" in an online mode, these workshops engaged all Faculty members (n196) over consecutive weeks. Two quizzes were administered, and feedback was collected at the end of each batch. The outcomes were measured through the assessment of Higher Order Thinking Skills (HOTS) exhibited in the assessment activities and feedback. The results indicated a high satisfaction index of 0.924, suggesting that the training workshop met the expectations of the participants.

CDIO-based curriculum provided tangible and intangible benefits to students as well as to teachers for their professional development.

File Description	Document
Appropriate webpage in the Institutional website	View Document
Any other relevant information	View Document

5. CONCLUSION

Additional Information :

- Introduction of following New Programmes
    - M.Sc. Data Science
    - Master of Architecture
    - B.Tech. Computer Science and Business Systems
    - M.E. Construction Engineering and Management
- Establishment of T S Srinivasan Centre for Automotive Research
- Development of Massive Open Online Courses
- Creation of Research Council
- Skill Development courses through CDIO Curriculum
- Interaction with Indo-Universal Collaboration for Engineering Education for Faculty Certification, National Education Policy (NEP) courses, Engineers without Border (EWB) student activities.

Concluding Remarks :

At Thiagarajar College of Engineering (TCE), our primary focus is on delivering world-class quality technical education imbued with strong ethical values. We strive for excellence in academics, research, student experience, industry collaboration, academic partnerships with esteemed institutions, and infrastructure development. We firmly believe in enhancing institutional excellence by continuously improving the quality of the teaching-learning process, utilizing the existing resources of students, faculty, time, funding, and other assets to their fullest potential.

The fundamental philosophy of the Internal Quality Assurance Cell (IQAC) at TCE revolves around the concept of maximizing the use of our existing space and time. We aim to optimize the utilization of available resources by re-tasking the space and time we already have, ensuring efficient and effective operations across all aspects of the institution. Through this approach, we strive to maintain and elevate the standards of quality in every facet of our educational endeavors.

6.ANNEXURE

1.Metrics Level Deviations

<table>
<tr><td>Metric ID</td><td>Sub Questions and Answers before and after DVV Verification</td></tr>
<tr><td>1.2.1</td><td>Percentage of new courses introduced out of the total number of courses across all programmes offered during the last five years

1.2.1.1. Number of new courses introduced during the last five years:
Answer before DVV Verification : 573
Answer after DVV Verification: 573
1.2.1.2. Consolidated number of courses offered by the institution across all Programmes (without repeat count) during the last five years :
Answer before DVV Verification : 1606
Answer after DVV Verification: 1561

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.</td></tr>
<tr><td>1.3.2</td><td>Number of certificate/value added courses/Diploma Programmes offered by the institutions and online courses of MOOCs, SWAYAM/e-PG Pathshala/ NPTEL and other recognized platforms (without repeat count) where the students of the institution have enrolled and successfully completed during the last five years.

Answer before DVV Verification :
Answer After DVV Verification :97
Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.</td></tr>
<tr><td>2.1.1</td><td>Enrolment percentage

2.1.1.1. Number of seats filled year wise during last five years (Only first year admissions to be considered)
Answer before DVV Verification:
<table>
<tr><td>2022-23</td><td>2021-22</td><td>2020-21</td><td>2019-20</td><td>2018-19</td></tr>
<tr><td>1109</td><td>1097</td><td>1046</td><td>1056</td><td>1120</td></tr>
</table>
Answer After DVV Verification :
<table>
<tr><td>2022-23</td><td>2021-22</td><td>2020-21</td><td>2019-20</td><td>2018-19</td></tr>
<tr><td>1104</td><td>1093</td><td>1044</td><td>1041</td><td>1097</td></tr>
</table>
2.1.1.2. Number of sanctioned seats year wise during last five years
Answer before DVV Verification:
<table>
<tr><td>2022-23</td><td>2021-22</td><td>2020-21</td><td>2019-20</td><td>2018-19</td></tr>
<tr><td>1209</td><td>1182</td><td>1154</td><td>1201</td><td>1191</td></tr>
</table></td></tr>
</table>

Answer After DVV Verification :

2022-23	2021-22	2020-21	2019-20	2018-19
1209	1182	1154	1201	1191

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

2.4.3 **Average teaching experience of full time teachers (Data to be provided only for the latest completed academic year, in number of years)**

2.4.3.1. **Total teaching experience of full-time teachers as of latest completed academic year**

Answer before DVV Verification : 3089

Answer after DVV Verification: 3070

Remark : As per the revised data and clarification received from HEI, based on that less than 1 year of experience could not be considered so DVV input is recommended accordingly.

3.1.2 **The institution provides seed money to its teachers for research**

3.1.2.1. **Amount of seed money provided by institution to its teachers for research year wise during last five years (INR in lakhs)**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
9.7	4	3.5	5.50	0

Answer After DVV Verification :

2022-23	2021-22	2020-21	2019-20	2018-19
9.36	3.61	3.10	5.28	00

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

3.6.2 **Number of extension and outreach programs conducted by the institution through organized forums including NSS/NCC with involvement of community year wise during the last five years**

3.6.2.1. **Number of extension and outreach programs conducted by the institution through organized forums including NSS/NCC with involvement of community year wise during the last five years.**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
19	24	10	28	11

Answer After DVV Verification :

2022-23	2021-22	2020-21	2019-20	2018-19
18	20	07	26	11

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

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**

Answer before DVV Verification :
Answer After DVV Verification :59

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

4.1.2 **Percentage of expenditure excluding salary, for infrastructure development and augmentation year wise during the last five years**

4.1.2.1. **Expenditure for infrastructure development and augmentation, excluding salary year wise during last five years (INR in lakhs)**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
688.88	245.85	697.09	853.22	1332.37

Answer After DVV Verification :

2022-23	2021-22	2020-21	2019-20	2018-19
455.78	87.84	491.44	798.79	654.12

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

4.3.2 **Student - Computer ratio (Data for the latest completed academic year)**

4.3.2.1. **Number of computers available for students' usage during the latest completed academic year:**

Answer before DVV Verification : 1554
Answer after DVV Verification: 1700

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

5.1.1 **Percentage of students benefited by scholarships and freeships provided by the institution, government and non-government bodies, industries, individuals, philanthropists during the last five years**

5.1.1.1. **Number of students benefited by scholarships and freeships provided by the institution, Government and non-government bodies, industries, individuals, philanthropists year wise during last five years**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
2630	1988	2369	3385	2654

Answer After DVV Verification :

2022-23	2021-22	2020-21	2019-20	2018-19
2630	1988	2369	3385	2645

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

5.2.1 **Percentage of placement of outgoing students and students progressing to higher education during the last five years**

5.2.1.1. **Number of outgoing students placed and progressed to higher education during the last five years**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
794	819	700	649	693

Answer After DVV Verification :

2022-23	2021-22	2020-21	2019-20	2018-19
790	817	696	645	688

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

6.3.2 **Percentage of teachers provided with financial support to attend conferences/workshops and towards membership fee of professional bodies during the last five years**

6.3.2.1. **Number of teachers provided with financial support to attend conferences/workshops and towards membership fee of professional bodies year-wise during the last five years**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
148	50	85	120	145

Answer After DVV Verification :

2022-23	2021-22	2020-21	2019-20	2018-19
145	42	75	103	115

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

6.3.3 **Percentage of teachers undergoing online/ face-to-face Faculty Development Programmes (FDPs)/ Management Development Programmes (MDPs) during the last five years**

6.3.3.1. **Total number of teachers who have undergone online/ face-to-face Faculty Development Programmes (FDP)/ *Management Development Programs (MDP)* during the last five years**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
94	82	168	141	130

Answer After DVV Verification :

2022-23	2021-22	2020-21	2019-20	2018-19
91	82	168	141	130

Remark : As per the revised data and clarification received from HEI, based on that DVV input is recommended.

2.Extended Profile Deviations

ID	Extended Questions
1.1	**Number of students on rolls year wise during last five years**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
4436	4320	4314	4315	4417

Answer After DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
4436	4320	4314	4375	4465

2.1 **Total expenditure excluding salary year wise during the last five years (INR in lakhs)**

Answer before DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
1615.54	787.19	1058.39	2319.60	2080.33

Answer After DVV Verification:

2022-23	2021-22	2020-21	2019-20	2018-19
1409.56	653.44	882.45	1440.93	1423.05