

THAPAR INSTITUTE OF ENGINEERING AND TECHNOLOGY  
(Deemed to be University)  
PATIALA

QUALITY MANUAL  
TIET/QMS/QM

Release No.: 5.2

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Soft Copy

MR ISO 9001:2015

  
DIRECTOR

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Director

## Amendment Sheet (1)

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1	7.4.2022	4.1	External 1. Admission of the best students 2. Retention of the best students 3. Regulations by statutory bodies 4. Market forces affecting placements 5. Recruitment and retention of the best faculty	External 1. Admission of the best students 2. Regulations by statutory bodies 3. Market forces affecting placements	18	5.1
2	7.4.2022	4.1	Internal 1. Provision of the best Teaching Learning Resources 2. Provision of comfortable and safe Hostel Accommodation 3. Provision of Related infrastructure like sports, medical and other extra-curricular facilities 4. Provision of Training and finishing school for placement 5. Provision for Acclimatization and cohabitation of newly admitted students (Frosh Week)	Internal 1. Provision of the best Teaching Learning Resources 2. Provision of comfortable and safe Hostel Accommodation 3. Provision of Related infrastructure like sports, medical and other extra-curricular facilities 4. Provision of Training and finishing school for placement 5. Provision for Acclimatization and cohabitation of newly admitted students (Frosh Week) 6. Retention of the best students 7. Recruitment and retention of the best faculty	18	5.1

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3	7.4.2022	5.3	Dean of Academic Affairs (DoAA), with additional responsibilities of Controller of Examiner (CoE)	Dean of Academic Affairs (DoAA), in coordination with Controller of Examiner (CoE)	28	5.1
4	7.4.2022	6.1.1	Risks -unfavourable statutory regulations	Risks -changes in statutory regulations	40	5.1
5	7.4.2022	6.2.2	Organization Objectives (Tabular form)	Column added "Responsibility"	43-45	5.1
6	31.07.2024	5.3	DoRSP	DoRDC	29	5.2
7	31.07.2024	5.3	Acquisition, stocking and displaying of books, journals, back volumes, national/international standards, CD-ROM, databases, audio and video cassettes, search packages etc.	Acquisition, stocking and displaying of books, journals, back volumes, national/international standards, e-resources	36	5.2
8	31.07.2024	-	Organisation	TIET	All	5.2
			Notes	Removed		
			Schools	As per new nomenclature		
			Grammatical refinement and paraphrasing	Throughout the DI		

## Amendment Sheet(3)

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9	31.07.2024	4.1	New	This includes determining if climate change is a relevant issue to TIET. <b>This is included to address ISO 9001:2015 / Amd.1:2024</b>	18	5.2
10	31.07.2024	4.2	New	- Affiliating/statutory/regulatory bodies: to ensure compliance with applicable norms/regulations. - Any issue related to climate change from above mentioned interested parties.  <b>This is included to address ISO 9001:2015 / Amd.1:2024</b>	19	5.2
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## Introduction

### Profile of the Institute

Thapar Institute of Engineering & Technology (TIET) was established on the 8<sup>th</sup> of October 1956 as an Engineering College named Thapar Institute of Engineering and Technology. It was established as a University in 1985 vide Section 3 of the UGC Act, 1956, under notification # F.9-12/84-U.3. Thapar Institute of Engineering & Technology offers Post-graduate and Undergraduate Programs in Engineering, Science, Management and Social Sciences. At TIET, we strive to maintain an environment that encourages scholarly inquiry and research, a spirit of creative independence and a deep commitment to academic excellence. We see our students as unique individuals with different interests and aspirations. The diverse programs and activities that develop the quality of mind, ethical standards, social awareness and global perspectives let the students shape their TIET experience and grow. Our alumni have excelled in varied fields such as business and industry, administrative and regulatory services, research and education and social and human rights organisations.

The academic units of the Institute are Departments, School and Centres. The role of DEPARTMENTS is to organise and conduct undergraduate, postgraduate and doctoral programmes in relevant engineering/science and technological disciplines. The SCHOOL offers postgraduate and doctoral programmes in relevant areas of Humanities. The CENTRES are special interdisciplinary units serving the Institute as a whole.

As of date, the academic units of the Institute are:

### Departments

- i. Biotechnology
- ii. Chemical Engineering
- iii. Civil Engineering
- iv. Computer Science and Engineering
- v. Electrical and Instrumentation Engineering
- vi. Electronics and Communication Engineering
- vii. Mechanical Engineering
- viii. Chemistry and Biochemistry
- ix. Mathematics
- x. Physics and Material Sciences
- xi. Energy and Environment

## School

- i. Humanities and Social Sciences

## Centres

- i. Central Library
- ii. Central Workshop
- iii. Centre of Information & Technology Management
- iv. Centre for Industrial Liaison and Placement
- v. Health Centre

## Salient features of the degree programmes:

- \* Semester system
- \* Continuous evaluation of the student's performance
- \* Letter grades
- \* Course-wise promotion
- \* Flexibility for students to select courses and move at an optimum pace suited to their ability, capacity and interest.

## Medium of instruction

The medium of instruction at TIET is English.

## Quality Management System

### 0.1 General

TIET's adoption of a quality management system is a strategic choice that can enhance overall performance and serve as a solid foundation for efforts aimed at sustainable development.

Using a quality management system based on this documented information would benefit TIET in the following ways:

- the capacity to consistently deliver goods and services that satisfy clients and adhere to applicable legal and regulatory requirements;
- the facilitation of chances to boost client satisfaction;
- the ability to address risks and opportunities related to its context and objectives;
- the capacity to show compliance with designated quality management system requirements.

The specifications for the quality management system included in this written information complement those for goods and services.

This information is documented using a process method that uses risk-based thinking and the Plan-Do-Check-Act (PDCA) cycle.

TIET would use the process approach to plan its processes and how they interact.

TIET could ensure that its processes are adequately resourced and managed and that opportunities for improvement are found and taken advantage of using the PDCA cycle.

TIET utilizes risk-based thinking to identify the variables that could cause its processes and quality management system to vary from the intended results, implement preventative controls to reduce unfavourable consequences and make the most of opportunities when they present themselves (see Clause 4).

TIET face challenges in a more dynamic and complex environment: consistently meeting criteria and addressing future demands and expectations. Along with corrective and ongoing improvements, the company may need to implement other types of improvement to meet this goal, including breakthrough change, innovation, and reorganisation.

The following verbal forms are employed in the information that is documented:

- — “shall” indicates a requirement;
- — “should” indicates a recommendation;
- — “may” indicates a permission;
- — “can” indicates a possibility or a capability.

## 0.2 Quality Management Principles

The quality management principles outlined in ISO 9000 are the foundation of this information that has been documented. The descriptions provide a summary of each principle, a justification for its relevance to TIET, some examples of benefits related to the concept, and examples of typical measures to boost the Institute's performance when putting the principle into practice.

The quality management principles are:

- customer focus;
- leadership;
- engagement of people;
- process approach;
- improvement;
- evidence-based decision-making;
- relationship management.

## 0.3 Process approach

### 0.3.1 General

To increase customer satisfaction by satisfying customer criteria, this documented material encourages adopting a process approach while building, implementing, and enhancing the efficacy of a quality management system. Clause 4.4 contains specific requirements deemed crucial to the adapting approach.

The Institution is more successful and efficient at attaining its goals when it can understand and manage connected processes as a system.

This method gives the Institute control over how the system's processes interact and is dependent on one another, improving the Institute's overall performance.

To achieve the desired results following the quality policy and strategic direction of the Institute, the process approach entails the methodical definition and management of processes and their interconnections.

The PDCA cycle (see 0.3.2) is used to manage the processes and the system as a whole, with a general emphasis on risk-based thinking (see 0.3.3) intended to seize opportunities and avoid undesired outcomes.

The use of the process approach in a quality management system achieves the following:

- understanding and consistency in meeting requirements;
- the consideration of processes in terms of added value;
- the achievement of effective process performance;
- improvement of processes based on the evaluation of data and information.

### 0.3.2 Plan-Do-Check-Act cycle

All processes and the quality management system can use the PDCA cycle.

Here is a concise summary of the PDCA cycle:

- **Plan:** Identify and address risks and opportunities while establishing the system's objectives, its processes, and the resources required to deliver results in compliance with customer demands and Institute standards;
- **Do:** put the plan into action;
- **Check:** keep an eye on processes, assess how they compare to policies, goals, specifications, and scheduled activities, and report the results when appropriate;
- **Act:** where necessary, take action to enhance performance.

### 0.3.3 Risk-based thinking

An effective quality management system requires risk-based thinking (see Clause 4). For example, taking preventive action to eliminate potential nonconformities, analysing any nonconformities that occur, and taking action to prevent recurrence appropriate for the effects of the nonconformity are all examples of risk-based thinking has been implicit in earlier editions of this documented information.

An Institute must plan measures to manage risks and opportunities to comply with this documented information's demands.

By addressing risks and opportunities, the quality management system becomes more effective, resulting in better outcomes and avoiding unfavourable effects.

Situations that allow the Institute to draw clients, create new goods and services, cut waste, or boost productivity are examples of situations that present opportunities. Consideration of related risks might be a part of actions to take advantage of opportunities. Uncertainty has a risk component that can have either favourable or unfavourable impacts. An opportunity may arise from a positive deviation from risk, although not all positive impacts of risk lead to opportunities.

#### 0.4 Relationship with other management system standards

An Institute can employ the process approach, the PDCA cycle, and risk-based thinking to integrate or align its quality management system with the requirements of other management system standards owing to this documented information.

This documented information relates to ISO 9000 and ISO 9004 as follows:

- ISO 9000 *Quality management systems — Fundamentals and vocabulary* provide essential background for the proper understanding and implementation of this documented information;
- ISO documented information 9004 *Managing for the sustained success of an Institute — A quality management approach* provides guidance for Institutes that progress beyond the requirements of this documented information.

This documented information does not include the standards specific to other management systems, such as environmental management, occupational health and safety management, or financial management.



## 1 Scope

This documented information outlines what a quality management system must do when an institute:

- Aims to increase customer satisfaction through the practical application of the system, including processes for improving the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.
- Needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements.

All of the specifications in this written information are general. They are meant to apply to any Institute, regardless of the kind, size, or type of products and services it offers.

### 1.1 Scope of certification

Scope of Certification to ISO 9001 Quality Management System covers all the academic departments, school and centres of the Institute as well as the support services research, consultancy and testing services, administrative co-curricular and extracurricular activities.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. The document's latest edition (including any amendments) applies for undated references.

- ISO 9000:2015, Quality management systems — Fundamentals and vocabulary

## 3 Terms and definitions

For this document, the terms and definitions given in ISO 9000:2015 apply.

## 4. Context of the Institute

### 4.1 Understanding the Institute and its Context

The Institute shall determine the external and internal issues that:

- are relevant to the Institute's purpose and strategic direction;
- and affect its ability to achieve the intended results of its quality management system.

TIET shall Monitor and review information about these external and internal issues.

A team of experts in the institute identified, monitored and reviewed the external and internal issues relevant to the organization's purpose and strategic direction; and affected its ability to achieve the intended results of its quality management system. This includes determining if climate change is a relevant issue to TIET.

After due deliberations and the same are listed below:

#### External

1. Admission of the best students
2. Regulations by statutory bodies. Changes in norms/regulations by regulatory/affiliating/statutory bodies.
3. Market forces affecting admissions and placements.
4. Changes in technologies and methodologies impacting the education sector.

#### Internal

1. Provision of the best Teaching Learning Resources
2. Provision of comfortable and safe Hostel Accommodation
3. Provision of Related infrastructure like sports, medical and other extra-curricular facilities
4. Provision of Training and finishing school for placement
5. Provision for Acclimatization and cohabitation of newly admitted students (Frosh Week)
6. Retention of the best students
7. Recruitment and retention of the best faculty
8. Activities impacting climate change

## 4.2 Understanding the Needs and Expectations of Interested Parties

Due to their effect, or potential effect, on your ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, TIET shall determine the following:

- interested parties that are relevant to the quality management system;
- appropriate needs of these interested parties.

A team of experts in the institute identified the information about the interested parties and their relevant requirements.

After due deliberations and the same are listed below:

- Student: value addition through the outcome-based teaching-learning process; placement; certification for higher education
- Faculty and Staff: Conducive working and living conditions; Performance-based Incentives; Professional Growth
- Potential Employers of Students: Good Quality Students with a well-rounded personality
- External Providers: Fairness in dealing and early disposal of monitory matters
- Affiliating/statutory/regulatory bodies: to ensure compliance with applicable norms/regulations.
- Any issue related to climate change from above mentioned interested parties.

## 4.3 Determining the Scope of the Quality Management System

The Institute shall determine the boundaries and applicability of the quality management system to establish its scope.

When determining the scope, consider the following:

- external and internal issues (see 4.1);

- requirements of relevant interested parties (see 4.2);
- products and services of the Institute.

TIET shall apply the requirements of ISO 9001 if they are applicable within the determined scope.

Maintain and make available the scope as documented information stating:

- Products and services covered
- Justification for any ISO 9001 requirements determined as not applicable

Conformity to ISO 9001 can only be claimed if the requirements determined as not applicable do not affect your ability or responsibility to ensure the conformity of products and services and enhance customer satisfaction.

The Scope of the Quality Management System covers the Activities of Departments of Chemical Engineering, Civil Engineering, Biotechnology, Computer Science & Engineering, Electrical & Instrumentation Engineering, Electronics & Communication Engineering, Mechanical Engineering, Chemistry & Biochemistry, Energy and Environment, Mathematics, Physics & Materials Science, and School of Humanities & Social Sciences, covering:

- Design, Development, Delivery, Examination and Support Services for Undergraduate, Postgraduate, and Doctoral Programs.
- Consultancy/Testing Services
- Design, Research & Development Activities

#### **4.4 Quality Management System and its Processes**

**4.4.1** Establish, implement, maintain, and continually improve the quality management system, including the processes needed and their interactions, according to ISO 9001 requirements.

Determine the processes needed for the quality management system and their application throughout the Institute and:

- determine the inputs required and outputs expected from these processes;
- determine the sequence and interaction of these processes;

- determine and apply the criteria and methods (including monitoring, measurements, and related performance indicators) needed to ensure effective operation and control of these processes;
- determine the resources required for these processes and ensure their availability;
- assign the responsibilities and authorities for these processes;
- address the risks and opportunities by requirements of 6.1;
- evaluate these processes and implement any changes needed to ensure that these processes achieve their intended results;
- improve the processes and the quality management system.

**4.4.2** (a) Maintain documented information (e.g., procedures and work instruction) to support the operation of processes.

(b) Retain documented information (e.g., records) to ensure the processes are being carried out as planned.

The documented information is contained in the functional manual of a department/school/centre, including the system-documented information common to all departments/centres. The operating manual is duly indexed and contains a list of associated work instructions and formats for documenting the information to be retained. The documented information has been classified into the following three heads.

- i) Academic documented information (Academic Procedures)
- ii) Departmental documented information (Departmental Procedures)
- iii) System documented information (System Procedures)

## 5 Leadership

### 5.1 Leadership and Commitment

#### 5.1.1 General

Top management shall demonstrate leadership and commitment to the quality management system by:

- taking accountability for the effectiveness of the quality management system;
- ensuring that the quality policy and quality objectives are established for the quality management system and are compatible with the context and strategic direction of TIET;
- ensuring the integration of the quality management system requirements into TIET's business processes;
- promoting the use of the process approach and risk-based thinking;
- ensuring that the resources needed for the quality management system are available;
- communicating the importance of effective quality management and of conforming to the quality management system requirements;
- ensuring that the quality management system achieves its intended results;
- engaging, directing and supporting persons to contribute to the effectiveness of the quality management system;
- promoting improvement;
- supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.

#### 5.1.2 Customer focus

Clause 5.1.2 requires that Top Management demonstrate a customer focus to ensure products and services consistently meet customer requirements.

Top management shall demonstrate leadership and commitment concerning customer focus by ensuring that:

- customer and applicable statutory and regulatory requirements are determined, understood and consistently met;
- the risks and opportunities that can affect the conformity of products and services and the ability to enhance customer satisfaction are determined and addressed;
- the focus on improving customer satisfaction is maintained.

The customer, in this case, is a student or the employing industry. The curriculum and the delivery process are designed and transacted in such a way that the requirements of the employing industry are fulfilled. For this, the information is collected from the employing offices from time to time. No programme is specially tailor-made for the requirements of different students; rather, the students have to opt for the existing programmes.

To ensure that the admitted and registered students clearly understand the requirements of their respective programmes and disciplines to qualify for the degree, diploma or certificate they were admitted & registered for, an information brochure is prepared, and the students are advised to read them.

The scope includes the selection process and documented information for admission, registration and execution of programmes. Amendments after admissions, if any, are per the statements in the Information Brochure.

The short-term courses and services rendered to outside agencies, e.g. consultancy, test services etc., are also included in the scope of customer-related processes.

The responsibility of the customer-related processes lies with the following:

<b>Scope</b>	<b>Responsibility</b>
1. Information Brochure	Registrar
2. Admission & Registration	DOAA
3. Execution of Programmes	HEAD
4. Consultancy & Testing Services	DoSRP & HEAD
5. Health Services	MO
6. Scholarships & Financial Assistance	DOSA
7. On-campus hostel accommodation/residence	Coordinating warden
8. Industry Placement	Head CILP

## 5.2 Policy

### 5.2.1 Establishing the Quality Policy

Top management shall ensure their commitment to quality and that the quality policy:

- Is appropriate for TIET and ISO implementation
- Includes a commitment to requirements and continual improvement
- Provides a basis for establishing quality objectives
- Is communicated and understood within TIET (staff training)
- Is periodically reviewed for suitability



### 5.2.1.1 Quality Policy

A quality policy has been defined by the Director of the Institute and documented as below:

*We, at Thapar Institute of Engineering & Technology, Patiala, are committed to creating, archiving and disseminating knowledge for service to humanity. We undertake to develop high quality, professionally groomed manpower, possessing multifaceted personality, respect for professional and social ethics, national values and the spirit of human emancipation.*

*Pursuing our commitment through:*

- *Ensuring topical and relevant curriculum*
- *Adept delivery mechanism*
- *Intellectual and professional fulfillment of faculty and staff*
- *Quality research in the frontiers of knowledge*
- *Involvement of all stakeholders in the growth and development of the Institute*
- *Continuous augmentation and renewal of infrastructure and facilities*
- *Creation of congenial and conducive work environment*
- *Promotion of teamwork and proactive participation*

**Director**

### 5.2.2 Communicating the Quality Policy

The quality policy shall:

- Be accessible and kept as documented knowledge
- Be shared, comprehended, and put into use within the organization
- Be accessible to interested parties as necessary.

The English language has been used to write the quality policy. It has been displayed in visible locations across the Institute so everyone can see it. The Institute's quality policy has been explained to and accepted by all its staff. It has ensured that every employee understands the policy's purpose, applicability, and obligation to abide by it. The management review examines the quality policy to ensure its continued applicability.

### 5.3 Institutional roles, responsibilities and authorities

Top management shall ensure that the responsibilities and authorities for relevant roles are assigned, communicated and understood within TIET.

Top management shall assign the responsibility and authority to:

- ensuring that the quality management system conforms to the requirements of this documented information;
- ensuring that the processes are delivering their intended outputs;
- reporting on the performance of the quality management system and opportunities for improvement, in particular to top management;
- ensuring the promotion of customer focus throughout the Institute;
- ensuring that the integrity of the quality management system is planned and implemented.

The top management has ensured that the responsibilities and authority are defined and communicated within the Institute.

The Institutional Chart of the Institute is given in Annexure 1.

## RESPONSIBILITY AND AUTHORITY

The responsibility, authority and interrelationship of personnel/bodies managing, performing and verifying all activities affecting the quality of instruction, evaluation and other aspects of the functioning of the Institute have been defined in the published Institute Rules:

**The responsibilities of some of the key personnel managing the QMS are listed below:**

### DEPUTY DIRECTOR

The Deputy Director will assist the director, who shall support him in all affairs related to Academics, Research, Faculty, Students and Administration. The Director and Dy Director will take all policy decisions and be presented to the Deans' Committee and later to the Heads Committee for final implementation.

	<b>Dy. Director</b>
<b>Responsibilities</b>	Academics, Admission, Examination, Accreditations, Academic and Sponsored Research, Consultancy, Distance education, International collaboration, ISO, Academic Audit, Convocation, TEQIP, Rankings Alumni Affairs, Placement, Industrial Relations, Branding, Project Semester
<b>Sections</b>	HOD/HOS/Deans
<b>Authority</b>	All leave application approvals for Heads and Deans All financial sanctions Faculty appraisal All approvals for Expert lectures, Outside experts, conferences (national & international), Seminars, workshops LTC, Children allowance approvals for both faculty and staff. Passport, NOC approval for applying to other Institutes Approval for Institute Car/Bus. Non-teaching issues
<b>Reporting</b>	Deans and Academic Audit cell, HOD/HOS shall report through Dy. Director to Director

The Deputy Director shall try to resolve the matters in their domain forwarded by respective deans /Heads and inform the director about the decisions taken or to be taken. The cases that the deputy director cannot resolve will go to the director for final action, whose decision shall be final. However, it will be necessary that the Director is informed about all the matters by Dy. director. All the cases/issues will be forwarded in the proper channel, i.e. Heads – Deans – Dy. Director – Director.

### **Dean of Academic Affairs (DoAA), in coordination with Controller of Examiner (CoE)**

- i) Admission of students at UG and PG levels
- ii) Design and Development of Instructional Process
- iii) Conducting regular meetings of SUGC, SPGC
- iv) Framing and revising rules and regulations of academics through SUGC and SPGC and, finally, Senate
- v) Preparation & distribution of academic schedule and timetable
- vi) Registration of students at the beginning of each semester
- vii) Decisions regarding the offering of backlog courses
- viii) Approval of examiners for various examinations at undergraduate and postgraduate levels (CoE)
- ix) Granting semester leave on genuine grounds to the students as per Institute rules and regulations
- x) Granting extensions etc., in the period for submission of Seminar and/or Thesis of Master of Engineering as per Institute rules and regulations
- xi) Conduct all examinations (online and offline) at Thapar Institute of Engineering & Technology (CoE)
- xii) Preparation and implementation of Date-sheet and Duty-sheet for examination and invigilators (CoE)
- xiii) Monitoring the grading of students
- xiv) Attendance requirements: DOAA will decide the students to be detained based on a shortage of attendance.
- xv) Award of A+ grade: To be decided by DOAA. A+ shall be awarded to only those students who are distinctly and clearly above the students getting an A grade.
- xvi) Award of F, I Grade: To be decided by DOAA.
- xvii) Any change in grade: Director's approval on the recommendations of DOAA
- xviii) DOAA to handle all the cases for the award of an 'X' grade

### **Dean of Research & Development Cell (DoRDC)**

- i) Admission, progress monitoring and evaluation of Ph.D. candidates.
- ii) Promotion of Research Activities in the Institute.
- iii) Initiating, submitting and follow-up on project proposals to sponsoring agencies and timely completion of the sponsored projects.
- iv) Initiating, submitting and following up on proposals for short-term courses and summer/winter schools.
- v) Transmitting the sanctioned proposal information to the HCILP for collation and to the concerned departments/Schools/Centres for organising approved short-term courses, winter/summer schools, etc.
- vi) Promotion of consultancy in the Institute

### **Dean of Students Affairs (DoSA)**

- i) The welfare of students in the Institute, their conduct, discipline, seriousness to studies, health, scholarships, fee concessions, etc.
- ii) Functioning of Hostels, promoting corporate community living and self-management, including kitchen, mess and dining hall management.
- iii) NSS programmes
- iv) Cultural Programmes organised by various Societies for the all-around personality development of students.
- v) Constituting Students Consultative Committee and holding meetings for the flow of ideas towards the growth & development of the Institute
- vi) In his capacity as Chairman Disciplinary Committee convenes its meeting and recommends disciplinary action whenever required.

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### **Dean of Contemporization and Accreditation (DOCA).**

This deanship focuses on the following:

- i) Process excellence. This involves redesigning and refining academic, administrative and operational processes to achieve TIET's long-term vision of Contemporization.
- ii) Enhance research funding from national and international (exploratory) agencies. This also includes exploring joint research projects with domestic and foreign Universities.
- iii) Branding and ranking.
- iv) Globalization for student and faculty exchange, attracting international students and faculty. This could also include finding opportunities for our students to find foreign internships and placement opportunities.
- v) Developing a “venture” lab to enhance the entrepreneurial opportunities for all our students.

The associate dean will generally focus on the above five items, particularly items i) to iii).

### **Dean of Faculty Affairs (DoFA)**

- i) Recruitment of faculty in the Institute
- ii) Faculty Development Programs and other policies and procedures that concern the quality and welfare of the faculty
- iii) Faculty attraction and retention
- iv) Performance Appraisals Evaluation and Incentive Scheme of faculty

### **Dean of Sustainability (DoS)**

The Dean of Sustainability is tasked with formulating sustainability-related policies and overseeing their effective implementation. Sustainability initiatives extend to all University campus areas, including hostels and residences. Regular consultations with the DoS are essential for aligning activities and policies with sustainability goals, such as

#### **Energy consumption:**

- Implementing energy-efficient practices such as using LED lighting, optimising HVAC systems and promoting energy-saving behaviours among students and staff
- Explore renewable energy sources like solar panels or wind turbines to power campus buildings

#### **Water conservation:**

- Instal water-saving fixtures to reduce water consumption and educate the campus community about water conservation practices, such as promptly turning off taps when not in use and fixing leaks.

#### **Sustainability-related course and research:**

- Offer courses and programs related to sustainability and climate change
- Encourage research initiatives that address sustainability challenges and propose innovative solutions

#### **Horticulture and green spaces:**

- Maintain green spaces on campus by planting trees, shrubs and flowers
- Promote community gardening and involve students in horticulture activities

#### **Waste management:**

- Implement effective waste segregation and disposable recycling programs
- Reduce single-use plastic and encourage reusable alternatives

#### **Awareness campaigns:**

- Organise sustainability awareness campaigns, workshops and events
- Engage students faculty and staff in discussions about environmental issues and sustainable practices, including motivating them to observe “no vehicle day” once a week

## Dean Outreach

The Dean shall effectively coordinate and develop the outreach activities of Thapar Institute of Engineering and Technology, Patiala, to achieve institutional objectives and ISO standards on quality.

### **Strategic Planning & Implementation:**

- Formulate and execute outreach plans to augment the institution's visibility and interaction with external stakeholders, such as schools, universities, and companies.
- Performance objectives should be formulated for each activity to be undertaken under the outreach program, per the objectives of the institution, mission and vision and the ISO quality standards.

### **Outreach Engagement:**

- Cultivate partnerships with educational institutions, industry leaders, governmental entities, and other pertinent organisations to further the institute's academic programs and objectives.
- Facilitate visits and conversations with prospective students, counsellors, and other essential stakeholders, promoting effective communication and meaningful participation.

### **Event Management & Coordination:**

- To facilitate and administer the organisational events and activities concerning school visits, open days, education fairs and other campus tours to ensure students get the best experience.
- Ensure that all events adhere to the ISO quality standards and that follow-ups and assessments are ongoing to improve any event.

### **Collaboration with Internal Departments:**

- Engage with academic departments, admissions, and communications teams to create and disseminate outreach materials.

### **Monitoring and Reporting:**

- Document all outreach activities, encompassing performance indicators, feedback, and outcomes, per ISO standards.



**Continuous Improvement:**

-Implement systems for collecting feedback from outreach participants and stakeholders to evaluate the efficacy of outreach initiatives. Execute continuous improvement techniques per ISO standards to elevate the quality and effectiveness of outreach initiatives.

**Compliance & Quality Assurance:**

-Ensure outreach activities follow legal, ethical, institutional, and ISO quality management standards. Audit and review outreach processes regularly to guarantee ISO Quality Manual compliance.

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## Dean of Digital Contents Transformation

**Strategic Planning:** Develop and execute a comprehensive digital content strategy aligned with the institution's goals and objectives.

**Content Development:** Oversee the creation and management of digital content, including multimedia, interactive materials, and online courses.

**Technology Integration:** Evaluate, recommend, and implement digital tools and platforms to enhance content delivery and management. This includes content management systems (CMS), learning management systems (LMS), and other digital technologies.

**Team Leadership:** Lead and manage a team of content creators, digital strategists, and other relevant staff. Provide direction, support, and professional development to ensure high-quality content production.

**Collaboration:** Work closely with other departments, such as IT, marketing, and academic faculties, to integrate digital content strategies and ensure alignment with institutional goals.

**Data Analysis:** Monitor and analyze content performance using analytics tools. Use data-driven insights to refine strategies, improve content effectiveness, and measure impact.

**Quality Assurance:** Ensure all digital content meets high standards of quality, including accuracy, accessibility, and compliance with institutional and regulatory guidelines.

**Innovation:** Stay updated with the latest trends and technologies in digital content and education. Implement innovative practices to enhance the institution's digital presence and engagement.

**Budget Management:** Develop and manage budgets for digital content projects and initiatives.

**Policy Development:** Create and enforce policies related to digital content creation, management, and distribution, including intellectual property rights, privacy, and security.

### HEAD OF DEPARTMENT/SCHOOL

- i) Preparation of teaching load (Assigning courses to various faculty members and laboratory instructional work to technical staff)
- ii) Ensuring the syllabus to Faculty at the start of the semester
- iii) Ensuring that the Instructional delivery process is carried out as per the schedule
- iv) Initiating the instructional design, development/modification process through the Board of Studies (BOS) as and when the need arises
- v) Collecting feedback from students and industry to serve as input for instructional design, development and modification
- vi) External provision of machinery, equipment, software & instructional material as required
- vii) Maintaining retained documented information like
  - \* Initiation of Instructional design
  - \* Course files
  - \* Students' complaints and their redressal
  - \* Admission of M.E. and Ph.D. students
  - \* Ongoing research projects in the department
  - \* Ongoing consultancy work in the department
- viii) Placement, monitoring & evaluation of students for Project Semester.
- ix) Upkeep and maintenance of machinery and equipment in the Department.
- x) Ensuring continuous upgradation of machinery, equipment, facilities, instructional aids etc., in the department by mobilizing funds
- xi) Promotion of Research & Consultancy in the department
- xii) Organising continuing education programs, sponsored/in-house short-term courses, workshops, seminars, conferences, symposia, winter/summer schools
- xiii) Interaction with the students, providing them with the required guidance & counselling
- xiv) Monitoring and functioning of technical societies in the department
- xv) Annual physical verification of assets and recommendations for write off
- xvi) Conduct the meetings of the following committees regularly
  - \* Board of Studies
  - \* Faculty meetings
  - \* Departmental Library Committee
  - \* DPPC (monthly)
- xvii) Ensure timely utilisation of various grants
- xviii) Ensure adjustment of maximum backlog courses of students in consultation with DOAA

## HEAD OF CENTRE

In general, the responsibilities of the Head of a Centre are :

- i) Efficient functioning and prompt discharge of the responsibilities assigned to the centre as per their documented system
- ii) Effecting pro-active & reactive improvement in the centre
- iii) Maintenance and retention of documented information and physical infrastructure
- iv) Active participation in continuing education programmes

The activities of each Centre differ widely depending upon their role and responsibilities. Specific responsibilities of various Heads of the Centres are briefly given below:

## HEAD, CENTRAL LIBRARY

- i) Acquisition, stocking and displaying of books, journals, back volumes, national/international standards, CD-ROM, databases, audio and video cassettes, search packages etc., e-resources
- ii) Cataloguing the acquired library material
- iii) Ensuring smooth access, issue and return of library material as per documented information
- iv) Providing a reprographic facility for reference material
- v) Maintenance of library equipment and material
- vi) Annual physical stock verification of library material
- vii) Inter-library networking for library and information services to users
- viii) Research Support Services include orienting subscribed resources, providing literature need-based literature research etc.

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### **HEAD, CENTRAL WORKSHOP**

- i) Imparting basic technical knowledge and developing requisite skills in various manufacturing processes, e.g. carpentry, electro-plating, forging, machining, metal casting, sheet metal work, tin smithy welding, etc.
- ii) Providing on-the-job training covering practical, managerial and commercial aspects of manufacturing to the students
- iii) Assisting and guiding in the manufacture of experimental rigs and set-ups for postgraduate students and research scholars
- iv) Modernisation and upgradation of infrastructural facilities
- v) Conducting special training programmes for in-service technical personnel

### **HEAD, CENTRE FOR INDUSTRIAL LIAISON AND PLACEMENT (CILP)**

- i) Organising Campus placement of students
- ii) Promoting Industry-Institute-Interaction
- iii) Assisting the departments in the placement of students in public/private sector undertaking for project semester and summer term training if required
- iv) Collecting feedback regarding academic programmes and the performance of students and transmitting the same appropriately for reactive corrections
- v) Collecting information regarding the offering of various continuing education programmes, sponsored/in-house short-term courses, winter/summer schools, workshops, etc. and transmitting the same to industries/institutions/users through brochures

## HEAD, CENTRE OF INFORMATION AND TECHNOLOGY MANAGEMENT

- i) Ensuring the availability of computing facilities as and when required by the users
- ii) Continuous modernisation and upgradation of the facilities
- iii) Ensuring the physical infrastructure is in good working condition/order through preventive and corrective maintenance
- iv) Repair and maintenance of instruments/equipment in Institute laboratories
- v) Design and fabrication of teaching aids/instruments and equipment for research work
- vi) Extending services for external provision and installation of instruments/equipment by Departments
- vii) Organising training programmes on the design, use, fabrication and maintenance of instruments/equipment
- viii) Offering consultancy and services to outside organisations
- ix) Ensuring internet and e-mail service to users of the Institute
- x) Ensuring proper working of the Institute's Website
- xi) Implementation, maintenance and upgradation of ERP at the Institute level
- xii) Advising for implementation of EPBAX at Thapar Institute of Engineering & Technology
- xiii) Liaisoning with different units for their Software need
- xiv) Build understanding with IT companies for the benefit of students and faculty of the Institute
- xv) To maintain a good level of infrastructure for students, faculty and research scholars
- xvi) To coordinate with internet service providers for the delivery of the best internet and other services

## HEAD, HEALTH CENTRE

- i) Providing preliminary medical services to the Institute community and, if need be, referring them to the specialists
- ii) Training the campus community for healthy living as well as extending preliminary medical aid in times of emergency
- iii) Ensuring hygienic conditions in the Hostel Mess & Dining Hall, Campus Canteens, etc.
- iv) Participating in special health drives for the prevention/eradication of various diseases

### MANAGEMENT REPRESENTATIVE (MR)

The Director vide his Office Order no. 48 dated 19<sup>th</sup> March 2013, has appointed Dr Mandeep Singh, Professor, Electrical and Instrumentation Engineering Department, as the Management Representative (MR) who, over and above his responsibilities, has been assigned the responsibility and authority for:

- i) Establishing, implementing and maintaining a quality system per ISO 9001 requirements and coordinating different functions and activities within the Institute in the said regard
- ii) Reporting the performance of the quality system to the Institute management for periodic review & improvement
- iii) Ensuring the promotion of awareness of students and employing industry's requirements throughout the Institute.
- iv) Liaison with external agencies on matters relating to the quality of the Instructional System at TIET

## 6 Planning

### 6.1 Actions to address risks and opportunities

6.1.1 When planning for the quality management system, the Institute shall consider the issues referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed:

- a) give assurance that the quality management system can achieve its intended result(s);
- b) enhance desirable effects;
- c) prevent or reduce undesired effects;
- d) achieve improvement.

A team of experts in the institute identified the information about risks and opportunities that need to be addressed.

After due deliberations the same are listed below:

#### Risks

- decline in quality admissions
- decline in placements
- the faculty attrition rate
- decline in Institute ranking
- obsolescence of research and lab equipment
- changes in statutory regulations
- discontent among students

#### Opportunities

- better marketing for quality admissions
- enhanced outreach to employers
- exploration for external funding and grants for modernisation
- consideration for better interaction and engagement with students



6.1.2 The Institute shall plan:

- a) actions to address these risks and opportunities;
- b) how to:
  - integrate and implement the actions into its quality management system processes (see 4.4);
  - evaluate the effectiveness of these actions.

Actions taken to address risks and opportunities shall be proportionate to the potential impact on the conformity of products and services.

Every department/School/Centre shall maintain a risk file, identifying the risks and opportunities, making the action plan, and monitoring the action taken. This activity shall be carried out at least once a semester, and the documented information will be retained.

The institute conducts a risk analysis to identify and eliminate the causes of potential non-conformities to prevent their occurrence. Risk assessment and mitigation are appropriate to the effects of the potential problems. Documented information has been established, which includes:

- i) To analyze information about feedback received through student response surveys, the results of students, CGPA levels of a class, feedback from the companies who came for campus recruitment and other such sources to determine potential non-conformities.
- ii) To determine steps needed to deal with any problem requiring risk assessment and mitigation
- iii) To initiate risk assessment and mitigation and to apply controls to prevent non-conformities
- iv) To confirm relevant information on actions taken to prevent non-conformities is submitted for management review.
- v) Retaining documented information of the results of action taken and reviewing the risk assessment and mitigation.
- vi) Review the effectiveness of the risk assessment and mitigation.

## 6.2 Quality objectives and planning to achieve them

6.2.1 The Institute shall establish quality objectives at relevant functions, levels and processes needed for the quality management system.

The quality objectives shall:

- a) be consistent with the quality policy;
- b) be measurable;
- c) take into account applicable requirements;
- d) be relevant to the conformity of products and services and the enhancement of customer satisfaction;
- e) be monitored;
- f) be communicated;
- g) be updated as appropriate.

The Institute shall maintain documented information on the quality objectives.

6.2.2 When planning how to achieve its quality objectives, the Institute shall determine the following:

- a) what will be done (objectives and goals);
- b) what resources will be required;
- c) who will be responsible;
- d) when it will be completed;
- e) how the results will be evaluated.

The objectives and goals of the Institute, as well as the indicators/ documented information of their measurement and monitoring, are given below:

(A) TIET Objectives

Objectives and Goals	Means to achieve the objective	Measurement Criteria/ Indicators	Responsibility
1. To develop high-quality, professionally groomed manpower.	<ul style="list-style-type: none"> <li>• Continuous upgradation of:               <ul style="list-style-type: none"> <li>- Curriculum matching with national needs</li> <li>- Delivery methodology</li> <li>- Manpower and infrastructural facilities</li> </ul> </li> <li>• Facilities for co-curricular &amp; extracurricular activities</li> <li>• Counselling</li> <li>• To generate &amp; maintain a conducive and congenial academic environment</li> <li>• Help &amp; guidance system outside the class room</li> <li>• Professional societies</li> <li>• Efficient services to &amp; disposal of requests of the students</li> <li>• Improving communication</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback from students</li> <li>• Feedback from the industry/ organizations participating in campus placements</li> <li>• Status, standing and profile of the alumni</li> <li>• Frequency of revision of curriculum</li> <li>• Feedback from external participants in refresher/short-term courses</li> <li>• No. of training programmes organized,</li> </ul>	DoAA  DoSA  Heads

	Skills	<p>attended by the employees</p> <ul style="list-style-type: none"> <li>• Sectional placements of student</li> <li>- Higher education</li> <li>- Industry</li> <li>- Service Sector</li> <li>- Entrepreneurs</li> </ul>	
2. To be amongst the top ranking Universities of technical & higher education	<ul style="list-style-type: none"> <li>• Defining vision &amp; mission &amp; translating into actions</li> <li>• To identify the National/International University for Bench Marking</li> <li>• Periodic self-assessment &amp; reviews</li> <li>• Accreditation by UGC/AICTE</li> <li>• Interaction with other Institutes/organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Results of accreditation by UGC/AICTE</li> <li>• Trends of options exercised by high-ranking candidates in the standard entrance test (GATE &amp; NET for admission to the Institute</li> <li>• Published reports by regulatory authority agencies and media</li> <li>• Status &amp; profile of the organizations employing our students.</li> </ul>	DD/DoFA Heads

<p>3. To act as a facilitator for knowledge generation &amp; dissemination</p>	<ul style="list-style-type: none"> <li>• Pure and applied research in the frontier areas</li> <li>• Development of curriculum &amp; co-curriculum programs for the dissemination of knowledge</li> </ul>	<p>Growth in:</p> <p>i. The number of specializations under M.E./Ph.D. Programme being offered</p> <p>ii. Number of M.E./Ph.D. degrees awarded each year</p> <p>iii. Number of papers published in referred journals and presented/published in conferences and proceedings at the National &amp; International level</p> <p>iv. Number of ongoing sponsored research projects</p> <p>v. Number of ongoing consultancy projects.</p> <p>vi. Number of patents filed/sealed</p> <p>vii. Feedback from the industry</p>	<p>DoRDC</p> <p>DoAA</p> <p>Heads</p>
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## (B) OBJECTIVES OF VARIOUS FUNCTIONS AND LEVELS

- Instructional Design & Development
- Instructional Delivery and Evaluation
- Research and Development
- Student Affairs

Quality planning includes determining the quality objectives and requirements for the product and services and covers the following:

- a) Identifying and procuring state-of-the-art instructional processes with matching evaluation & management systems to meet quality objectives and process requirements.
- b) Matching the instructional design and development with the customers' requirements, i.e. students, industry and society.
- c) Matching the resources, e.g. knowledge & skill of faculty members as well as technical and support staff, good quality operational equipment in the laboratories and availability of other facilities like teaching aids relevant to the instructional design.
- d) Laying down a scheme to control the instructional process for evaluating students at various stages.
- e) Specifying the performance criteria and verification for completing the process culminating in awarding a degree/certificate.
- f) Objective evidence is shown through retained documented information that the realization process and resulting product and services meet the requirements.

### 6.3 Planning of changes

When the Institute determines the need for changes to the quality management system, the changes shall be planned (see 4.4).

The Institute shall consider the following:

- a) the purpose of the changes and their potential consequences;
- b) the integrity of the quality management system;
- c) the availability of resources;
- d) the allocation or reallocation of responsibilities and authorities.

## 7 Support

### 7.1.1 General

The Institute shall determine and provide resources to establish, implement, maintain, and continually improve the QMS. And shall consider

- a) the capabilities of, and constraints on, existing internal resources
- b) what needs to be obtained from external providers.

For each programme, depending upon the number of registered students and the detailed curriculum, the requirements of human (e.g. faculty in the area of expertise, technical & supporting staff) and physical resources (e.g. Classrooms, Labs, Equipment, Software) are estimated and submitted to the management for consideration and approval. The Director and the concerned heads are responsible for providing needed resources to ensure the smooth functioning of each programme. The Director also ensures resources needed for internal quality audits as per the need projected by MR.

### 7.1.2 People

The Institute shall determine and provide the persons necessary for effectively implementing its QMS and the operation and control of its processes. The institute has appointed an ISO Management Representative (MR) with a team of Deputy Management Representatives (DMRs) and Department/School ISO Coordinators.

### 7.1.3 Infrastructure

The Institute has determined the requirements for infrastructure, provided it and is maintaining and upgrading it from time to time to meet the requirements of the instructional process so that the quality of instructional design and delivery and, in turn, professional development of the students is achieved. The infrastructure provided in the Institute includes:

- a) Building including classrooms, auditoriums, laboratories, library, computer centres, offices, hostels, workshops, dispensary, play grounds, indoor sports facilities and others.
- b) Equipment and software in the laboratory, books and other referral material in the library, furniture and fixtures in offices, classrooms, hostels, etc.
- c) Support services such as communication or information systems like telephone, fax, internet (e-mail); and transport like college bus, cars, etc.

### 7.1.4 Environment for the Operation of Processes

The Institute shall determine, provide, and maintain the environment necessary for the operation of processes and to achieve conformity of products and services. A suitable environment for the operation of processes can be a combination of human and physical factors such as social (e.g. non-discriminatory, calm, non-confrontational, etc.), psychological (e.g. stress-reducing, burnout prevention, emotional protective), physical (for example, temperature, heat, humidity, light, airflow, hygiene, noise). These factors can differ depending on the product type and service the Institute provides.

All the classrooms are well-ventilated and well-lit. Most of the classrooms have projection facilities, and some of them are air-conditioned. A safety factor is duly considered while designing the buildings. The Institute ensures the maintenance of security and discipline by employing adequate guards (both male and female). An in-house dispensary with resident doctors and faculty-in-charge ensures the medical facility to all campus residents. The Institute has an Ambulance to cater to the needs of medical emergencies. The institute has a regular counsellor to monitor and relieve the psychological stress of the students. Regular activities are held to provide ample social interaction among the students and the staff.

### 7.1.5 Monitoring and Measuring Resources

#### 7.1.5.1 General

The Institute shall determine and provide the resources needed for valid and reliable monitoring and measuring results, where monitoring or measuring is used for evidence of conformity of products and services to specified requirements. The Institute shall ensure that the resources provided are suitable for monitoring and measurement activities and are maintained to ensure continued fitness for their purpose. The Institute shall retain appropriate documented information for monitoring and measurement resources as evidence of fitness.

The Institute has appointed a team of Deputy Management Representatives and Departmental ISO Coordinators under the aegis of Management Representative. This team ensures the conformity of products and services to specified requirements.



### 7.1.5.2 Measurement Traceability

Where measurement traceability is a requirement (statutory or regulatory or customer or relevant interested party expectation) or considered by the Institute to be an essential part of providing confidence in the validity of measurement results, measuring instruments shall be verified or calibrated at specified intervals or before use against measurement standards traceable to international or national measurement standards. The Institute shall retain the basis used for calibration or verification as documented information if no such standard exists as documented information. Measuring instruments shall be identified to determine their calibration status. They shall be safeguarded from adjustments, damage, or deterioration that would invalidate calibration status and subsequent measurement results. The Institute shall determine if the validity of previous measurement results has been adversely affected when an instrument is found to be defective during its planned verification or calibration or its use and take appropriate corrective action as necessary.

The Institute has made arrangements to control, calibrate & maintain monitoring and measuring devices (including software) to ensure that the product and services meet the specified requirements.

The bulk of measuring & test equipment is for instructional purposes. The scope of this clause, in general, is, therefore, limited to control and maintenance. However, wherever inspection is warranted, it is carried out.

The arrangements made in every department of the Institute for Control of Monitoring and Measuring Devices include the following:

- i) Identification of the measurements to be made and standards to be followed.
- ii) Selection of appropriate equipment for measurement.
- iii) Calibration (restricted to the Civil Engineering Department for Testing work), including calibration process indicating calibration status.
- iv) Validating the previous inspection results if the equipment is out of calibration.
- v) Suitable environment for calibration.
- vi) Handling, storage and preservation of equipment and safeguarding against tampering after calibration.

### 7.1.6. Organizational Knowledge

The Institute shall determine the knowledge necessary to operate its processes and to achieve conformity of products and services. This knowledge shall be maintained and made available to the extent necessary. When addressing changing needs and trends, the Institute shall consider its current knowledge and determine how to acquire or access any necessary additional knowledge and required updates. Organizational knowledge is knowledge specific to the organization and generally gained by experience. Information is used and shared to achieve the organization's objectives. Organizational knowledge can be based on: a) Internal Sources (e.g., intellectual property, knowledge gained from experience, lessons learned from failures and successful projects, capturing and sharing undocumented knowledge and experience; the results of improvements in processes, products, and services); b) External Sources (e.g., standards, academia, conferences, gathering knowledge from customers or external providers).

When addressing changing needs and trends, TIET shall consider its current knowledge and determine how to acquire or access any necessary additional knowledge and required updates.

The Institute has its Intellectual Property Rights (IPR) cell that caters to IPR needs like filing patents, claiming copyrights, etc. Nava Nalanda Central Library of the Institute maintains all digitized records of the Master and Doctoral Theses of all the students since 2006 in DSPACE (Digital Signal Processor for Applied and Control Engineering). Proceedings of all the conferences attended by the faculty are maintained in the departmental/central library and retained documented information of all research papers published in the Annual Report of the Institute.

## 7.2 Competence

The Institute shall determine the necessary competence of person(s) doing work under its control that affects the performance and effectiveness of its QMS; It shall ensure that these persons are competent based on appropriate education, training, or experience and, where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken; It shall retain documented information as evidence of competence. Applicable actions can include, for example, training, mentoring, or reassignment of currently employed persons; or hiring or contracting of competent persons.

“Competence” is applying knowledge and skills to achieve intended results. Demonstrated competence is sometimes referred to as “qualification”.

The Institute has determined the necessary competence for personnel performing work for every position in teaching and non-teaching categories, affecting conformity to the product. The qualifications and experience required as eligibility conditions for various positions are as per the regulatory and funding agencies like UGC, AICTE, Government and others.

Where applicable, training is provided to various categories of employees to achieve the necessary competence in their activities. Training needs are determined from time to time based on employees' job rotation, career progression, and changes in technology systems or structure in TIET.

After the provision of training, feedback on its effectiveness is taken from the participants, resource persons (trainers), and participants' supervisors. The effectiveness of the actions taken is measured by analysing this feedback, which serves as feedback for future actions.

Through training programmes, circulars, notices, quality policies, work instructions and meetings, the Institute ensures that all its employees know the relevance and importance of their activities and how they contribute to achieving quality objectives.

Retained documented information on education, training, skills and experience is maintained and updated from time to time.

### 7.3 Awareness

Persons doing work under the Institute's control shall be aware of

- a) the quality policy;
- b) relevant quality objectives;
- c) their contribution to the effectiveness of the QMS, including benefits of improved quality performance;
- d) and the implications of not conforming with system requirements.

### 7.4 Communication

The Institute shall determine the internal and external communications relevant to the QMS, including:

- a) on what it will communicate;
- b) when to communicate;
- c) with whom to communicate;
- d) how to communicate;
- e) who communicates

Management Representative shall be responsible for communicating QMS to all functional heads from time to time. Further, top management has ensured that appropriate communication processes are established within the Institute and that communication takes place regarding the effectiveness of the quality management system. This includes a PBX facility and telephone availability to all employees, an Internet facility with the email ID of all teachers and offices, circulars, officer orders, notices, meetings & reviews.

### 7.5 Documented Information

#### 7.5.1 General

The Institute's QMS shall include

- a) all documented information required by ISO 9001
- b) the documented information determined by the Institute is necessary for the effectiveness of the QMS.

### 7.5.2 Creating and Updating

When creating and updating documented information, the Institute shall ensure appropriate

- a) identification and description (e.g., a title, date, author, or reference number);
- b) format (e.g., language, software version, graphics), and media (e.g., paper, electronic);
- c) review and approval for suitability and adequacy.

### 7.5.3 Control of Documented Information

#### 7.5.3.1

Documented information required by the QMS and by ISO 9001 shall be controlled to ensure:

- a) it is available and suitable for use where and when it is needed;
- b) it shall be adequately protected from loss of confidentiality, improper use, or integrity.

#### 7.5.3.2

For the control of documented information, the Institute shall address, as applicable:

- a) distribution, access, retrieval, and use;
- b) storage and preservation, including preservation of legibility;
- c) control of changes (e.g., version control);
- d) retention and disposition.

Documented information of external origin determined by the Institute to be necessary for the planning and operation of the system shall be identified as appropriate and controlled.

Documented Information retained as evidence of conformity shall be protected from unintended alterations.

## 8 Operation

### 8.1 Operational Planning and Control

The Institute shall plan, implement, and control the processes, as outlined in 4.4, needed to meet requirements for the provision of products and services and to implement the actions determined in 6.1 by

- a) determining product and service requirements;
- b) establishing criteria for
  - 1) the processes
  - 2) the acceptance of products and services;
- c) determining the resources needed to achieve conformity to product and service requirements;
- d) implement control of the processes following the criteria;
- e) determining, maintaining and retaining documented information to the extent necessary
  - 1) to have confidence that the processes have been carried out as planned
  - 2) to demonstrate the conformity of products and services to requirements.

The output of this planning shall be suitable for the Institute's operations.

The Institute shall control planned changes and review the consequences of unintended changes, taking action to mitigate any adverse effects as necessary.

The Institute shall ensure outsourced processes are controlled under 8.4.

### 8.2 Determination of Requirements for Products and Services

#### 8.2.1 Customer Communication

The Institute shall establish the processes for communicating with customers to:

- a) provide information relating to products and services;
- b) handle inquiries, contracts, or order handling, including changes;
- c) obtain customer feedback relating to products and services, including customer complaints;
- d) handle or control customer property
- e) establish specific requirements for contingency actions when relevant.

The Institute has determined and implemented adequate arrangements for communicating with students. The arrangements include an information brochure about all programmes, eligibility criteria, fees and other details. For feedback, including complaints and their redressal, telephone, e-mail, post, etc., are provided, and responsibilities are defined.

The following retained documented information of customer-related processes are maintained for a stipulated time:

- Brochure
- Applications of candidates
- Admission and Registration retained documented information
- MOUs on Consultancy/Test services
- Feed backs

### **8.2.2 Determination of Requirements Related to Products and Services**

While determining the requirements for the products and services to be offered to customers, the Institute shall ensure that the product and service requirements (including those considered necessary by the Institute) and applicable legal requirements are defined. The Institute shall also ensure that it can meet the defined requirements and substantiate the claims for its products and services.

### **8.2.3 Review of Requirements for Product and Services**

8.2.3.1 The Institute shall ensure that it can meet the requirements for products and services to be offered to customers. The Institute shall review before committing to supply products and services to a customer. The review shall include

- a) the requirements specified by the customer, including the requirements for delivery and post-delivery activities;
- b) requirements not stated by the customer but necessary for the specified or intended use when known;
- c) requirements specified by the Institute;
- d) statutory and regulatory requirements applicable to the products and services;
- e) contract or order requirements differ from those previously expressed.

The Institute shall ensure that contract or order requirements differing from previously defined are resolved. When the customer does not provide a documented statement of their requirements, the Institute shall confirm them before accepting them.

8.2.3.2 The Institute shall retain documented information

- a) on the results of the review
- b) on any new requirements for the products and services.

For every programme run by the Institute, the resource requirements are reviewed from time to time based on the changing requirements of the employing organizations and significant developments in science and technology. It is ensured that the Institute has the capability and the capacity to impart quality education and produce competent engineers and other professionals in all the programmes run by the Institute.

### 8.2.4 Changes to requirements for products and services

The Institute shall ensure that relevant documented information is amended and that relevant persons are made aware of the changed requirements when the requirements for products and services are changed.

## 8.3 Design and Development of Products and Services

### 8.3.1 General

The Institute shall establish, implement, and maintain a design and development process adequate for subsequent production or service provision.

The Institute plans and controls the design and development of the curriculum and the qualities required in passing out students. The scope includes the following for all the programmes/services the Institute offers.

- i) Curriculum design
- ii) Detailed syllabi of all courses
- iii) Logical sequence of courses, including their pre-requisites
- iv) Instructional Methodology
- v) Evaluation Criteria & Methodology



The responsibility for design control lies with the following :

ACTIVITY	RESPONSIBILITY
Identification, feasibility study and viability of new programmes	Director, P&MB, Senate, BOG.
Approval by AICTE/UGC for new programmes.	Registrar
Need Assessment, Design and Development (For New as well as a review of on-going programmes)	HOD
Review and Verification of Need Assessment, Design and Development.	BOG
Review and Validation of Design and Development through statutory bodies, e.g. senate and its sub-committees (SUGC, SPGC).	DOAA
Review & validation by BOG	Registrar

### 8.3.2 Design and Development Planning

While planning for design and development, the Institute shall consider the following in determining the stages and controls for design and development:

- a) the nature, duration and complexity of the design and development activities
- b) the required process stages, including applicable design and development reviews
- c) the required design and development verification and validation activities;
- d) the responsibilities and authorities involved in the design and development process;
- e) the internal and external resource needs for the design and development of products and services;
- f) the need to control interfaces between persons involved in the design and development process
- g) the need for the involvement of customers and users in the design and development process
- h) the requirements for the subsequent provision of products and services;
- i) the level of control expected for the design and development process by customers and other relevant interested parties;
- j) the documented information needed to demonstrate that design and development requirements have been met

The planning and Monitoring Board of the Institute ensures that the design & development activity is carried out in a planned manner. Detailed planning for the design and development of instructions is done by DOAA. Design plans include the activities & sub-activities, including techniques & organizational interfaces, and the time frame for completion. The plans are updated as the instructional design evolves.

Need analysis report (periodically or as per need) shall comprise of :

- i) Stated customer needs
- ii) Needs that the customer has yet not realized (Implied needs).
- iii) Overall goals of Instructions
- iv) Relevant standards, i.e. AICTE and UGC guidelines and Curricula of Entrance Tests like Indian Engineering Services (IES) and Graduate Aptitude Test for Engineers (GATE), etc.
- v) General characteristics of the target population.

#### ***Organizational & Technical Interfaces:***

Organizational and Technical interfaces between faculty and external expert groups providing input to the instructional design are defined, committees are constituted, and their reports are documented. Faculty members from different disciplines connected with the design & development activity are associated with the process. The updation/restructuring is carried out as the design process progresses. Clear responsibilities are assigned, and effective communication is ensured.

### **8.3.3 Design and Development Inputs**

The Institute shall determine the requirements essential for the specific type of products and services being designed and developed, including, as applicable,

- a) functional and performance requirements;
- b) information derived from previous similar design and development activities
- c) applicable legal requirements;
- d) standards or codes of practice the Institute has committed to implement;
- e) potential consequences of failure due to the nature of products and services;
- f) Ensure inputs are adequate for design and development purposes, complete, and unambiguous.
- g) Resolve conflicts among Design and Development inputs.

The Institute shall retain documented information and design and development inputs.

The requirements of instructional design are determined, and documented information is retained. For instructional design, the input is taken from various sources. Input requirements are clearly understood and reconciled. The design input may come from:

- i) Need analysis & Reviews.
- ii) Recommendations from alumni, senior management, industry, etc.
- iii) Success/failure reports of similar courses & programmes.
- iv) Published literature relevant to programmes.
- v) Boundary condition w.r.t GATE, IES, IAS curricula etc.

### ***Design and Development Process***

The process of determining solutions to satisfy the identified needs is laid down and documented. Instructions are designed by incorporating these solutions. The analysis and mappings are recorded. The design output at this stage is taken as the initial design for subsequent reviews.

### **8.3.4 Design and Development Controls**

The Institute shall apply controls to the design and development process to ensure that

- a) results to be achieved by the design and development activities are clearly defined;
- b) Design and development reviews are conducted as planned;
- c) Verification activities are conducted to ensure that the design and development outputs have met the design and development input requirements;
- d) Validation activities ensure that the resulting products and services meet the requirements for the specified application or intended use (when known).
- e) Any necessary actions on the problems determined during the reviews or verification and validation activities.
- f) Maintain any documented information on these activities.

Design verification is conducted by comparison of the design with similar courses run by prestigious Universities. Evolved designs are also verified by taking the independent opinion of the experts from amongst the peer group from within or outside the Institute. The new curriculum is introduced only after adequate verification.

A new/revised curriculum and instructional design apply to prospective students. The curriculum is validated in the initial stages of its introduction by taking close feedback from students and faculty members regarding the effectiveness and applicability of the curriculum to the documented needs. Necessary changes, if required, are made to ensure that the design

conforms to the defined needs of the students. Additional instructional sessions and allied inputs are arranged for students/participants whenever required.

Design changes are made both reactively as well as proactively. The need is identified from the feedback from the students and/or analysis of their performance data. Periodic design changes are also effected to offset the obsolescence of the design or if a need for change is realized. All the steps required for initial design & development are followed for effecting and incorporating changes. Review is carried out, and changes are documented. Retained documented information on the results of the review is maintained.

### 8.3.5 Design and Development Outputs

The Institute shall ensure that design and development outputs

- a) meet the input requirements for design and development
- b) are adequate for the subsequent processes for the provision of products and services.
- c) include or have a reference of monitoring and measuring requirements and acceptance criteria, as applicable
- d) are fit for the intended purpose and their safe and proper use.

The output of instructional design & development is documented in a “Curriculum and Scheme of Courses” report. Through various reviews and verifications, it is ensured that the design output meets the design input requirements. The design output report includes the following:

- i) The types and levels of skill and knowledge to be imparted
- ii) Details of need analysis and mappings at various stages
- iii) The scheme of courses and the detailed syllabi
- iv) Instructional strategies.
- v) Selection of instructional aids for delivery.
- vi) Assessment and evaluation.

The output documents, like curriculum and instructional strategies, are reviewed and approved at various levels and stages before release.

### 8.3.6 Design and Development Changes

The Institute shall identify, review and control changes made (during the design and development of products and services, or subsequently) to design inputs and design outputs to the extent that there is no adverse impact on conformity to requirements.

The Institute shall retain documented information on

- a) design and development changes, the result of the review,
- b) the authorization of changes
- c) action taken to prevent adverse impact.

Reviews are conducted at defined stages of the curriculum Design, in which faculty members from the concerned area and experts from the peer group within and/or outside the Institute are associated. Retained documented information of the reviews is maintained. Based on the reviews, the design is updated and brought into document control for revision. The design reviews are carried out at the end of each of the following stages using prescribed checklists:

- i) Need analysis based on alumni and industrial feedback
- ii) Design and review by BOS
- iii) Review by SUGC/SPGC
- iv) Review by Senate
- v) Review by BOG

## 8.4 Control of Externally Provided Products and Services

### 8.4.1 General

The Institute shall ensure that externally provided processes, products, and services meet specified requirements.

The Institute shall apply the specified requirements for control of externally provided products and services when :

- a) external providers provide products and services for incorporation into the Institute's products and services;
- b) products and services are provided directly to the customer by external providers on behalf of the Institute;

- c) An external provider provides a process or part of a process as a result of a decision by the Institute to outsource a process or function.

The Institute has a Central Store under the aegis of the Head Commercial and a Human Resource Section under the aegis of the Chief Human Resources Officer. Through their Standard Operational Procedures (SOP), these sections have determined and applied the criteria for evaluating, selecting, monitoring performance, and re-evaluating external providers based on their ability to provide processes, products, and services per specified requirements. The Institute retains appropriate documented information on the abovementioned activities and any necessary action arising from evaluation.

#### 8.4.2 Type and Extent of Control

The Institute shall ensure that externally provided processes, products and services do not adversely affect its ability to consistently deliver conforming products and services to its customers.

The Institute shall

- a) ensure that externally provided processes remain within the control of its quality management system
- b) define both the controls that it intends to apply to an external provider and those it intends to apply to the resulting output.
- c) take into consideration
  - 1) the potential impact of the externally provided processes, products, and services on the Institute's ability to consistently meet customer and applicable legal requirements
  - 2) effectiveness of the controls applied by the external provider.
- d) determine the verification or other activities necessary to ensure the externally provided processes, products, and services meet the requirements.

### 8.4.3 Information on External Providers

The Institute shall ensure the adequacy of specified requirements before communicating with external providers.

The Institute shall communicate to external providers the applicable requirements for the following:

- a) products and services to be provided or the processes to be performed on behalf of the Institute;
- b) approval or release of products and services, methods, processes or equipment;
- c) competence of personnel, including necessary qualifications;
- d) their interactions with the Institute's quality management system;
- e) control and monitoring of the external provider's performance to be applied by the Institute;
- f) verification activities that the Institute or its customer intends to perform at the external provider's premises.

The Institute has made arrangements to ensure the external provision of faculty, officials and staff as per norms and external provision of physical infrastructure conforming to standards and specified requirements. The scope and responsibility under external provision include:

Scope	Responsibility
1) External provision of faculty, officials, technical and other Staff/Faculty Affairs	Director/ Dean
2) External provision of physical infrastructure for instructional purposes	HEAD
3) External provision of physical infrastructure for general purpose, e.g. office furniture and equipment, consumable like stationery and Housekeeping items	Registrar

### Process for external provision

External provision of manpower and physical infrastructure are carried out to ensure the quality of products and services and the satisfaction of laid down norms & financial powers. Delegated power, if any, including regulatory requirements, has been specified and is adhered to. External provision activity may be conducted through any of the following modes:

### External provision of manpower

All regular appointments shall be through invitation or advertisement published in newspapers/magazines and/or through search committees constituted for the purpose. Subsequently, duly constituted selection committees shall hold interviews per the criteria. Selection shall be made on merit.

Temporary appointments, if needed, shall be made on the recommendation of the HOD with subsequent approval by the prescribed appropriate authority.

### External provision of physical infrastructure:

Items needed for physical infrastructure may be externally provided through:

- i) Notice inviting tenders
- ii) Rate Contract
- iii) Calling limited quotations
- iv) Proprietary items
- v) Spot Purchase Committee
- vi) Control Quota Items
- vii) Imprest
- viii) LC in case of Imported Items

### Evaluation of external provider

#### (i) For Physical Infrastructure:

For regularly externally provided high-value/high-volume items, the external providers shall be evaluated to assess their ability to meet the requirements through:

- \* Initial evaluation
- \* Post approval Periodic evaluation.

The evaluation process shall be based on one or more of the following criteria :

- \* Inspection & Evaluation of external provider's quality system.
- \* ISO 9001 approved external provider.
- \* Evaluation of product/material.
- \* External provider's history & quality rating, wherever available.



Items/product-wise list of approved external providers shall be maintained in the department. Control shall be exercised on the external providers depending on the criticality of the product and services through product and services classification and the experience and quality rating (if available) of the external providers.

**(ii) For External Provision of faculty:**

For augmenting the faculty in the deficient area or in case of an emergent need, faculty services shall be provided externally based on a specified evaluation process and per the criteria.

**(iii) For Students Project Semester Placement:**

Identification of prospective industries/organisations where students shall be placed for the project semester; evaluation shall be carried out based on the following considerations:

- \* Organisation's name, corporate image and market reputation.
- \* Sales turnover and Number of employees.
- \* Qualifications of personnel at the executive level.
- \* Nature of Projects that can be undertaken/offered.
- \* Support Facilities offered by the organisation.

**External Provision Information**

External Provision Documented Information has been designed to include all product/service-specific acceptance criteria, cost details, requirements of qualifications of personnel and the quality management system requirements.

**Verification of externally provided human resources**

Externally provided human resources shall be periodically appraised as per documented information during probation, before confirmation, and after that to ensure that they meet all specified requirements.

**Verification of externally provided physical infrastructure**

The verification of externally provided physical infrastructure shall be carried out as per the details given in the documents, quality plans and retained documented information shall be maintained.

### **Verification of externally provided products and services at the premises of external provider.**

Wherever specified, the data, the machinery, the equipment and other externally provided items shall be inspected by the indenter and verified at the external provider's premises.

### **Retained documented information**

All retained documented information for the external provisions shall be maintained.

## **8.5 Production and Service Provision**

### **8.5.1 Control of Production and Service**

The Institute shall implement production and service provisions under controlled conditions. Include these controlled conditions, as applicable:

- a) availability of documented information that defines characteristics of products and services.
- b) availability of documented information that defines activities to be performed and results to be achieved
- c) availability and use of suitable monitoring and measuring resources
- d) implementation of monitoring and measurement activities at appropriate stages to verify that criteria for control of processes and process outputs, and acceptance criteria for products and services, have been met.
- e) use and control of suitable infrastructure and process environment for the operation of the process.
- f) appointment of a competent person and, where applicable, required qualification of persons;
- g) validation, and periodic revalidation, of the ability to achieve planned results of any process for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement
- h) implementation of products and services release, delivery, and post-delivery activities.

The instructional process in the Institute is planned, documented, and executed under controlled conditions for the attainment of desired goals. The flow chart for teaching activity is given in Annexure II

The major components of the instructional process to be controlled are:

Scope	Responsibility
1) Need Assessment	Head
2) Instructional Design & Development	DOAA
3) Imparting Instructions/Teaching	Instructor, DOAA
4) Conduct of Examinations	DOAA, Instructor
5) Outcome Measurement/Evaluation	Instructor
6) Discipline	Head, Deans, Dy. Director
7) Major support processes like administration, co-curricular activities, library, sports and extra-curricular activities	DOAA, DOSA, Head
8) Short Term Courses	Concerned Faculty

The control of the instructional process in the Institute includes the following:

- i) Planning & execution of instruction as per curriculum needs for core and professional courses, with or without laboratory component, in compliance with references/codes, designed curriculum and guidelines of UGC/AICTE.
- ii) Ensuring adequate qualified and trained human resources and physical infrastructure according to the designed curriculum and class strength.
- iii) Provision of requisite material support.

**in classrooms:** chalk, duster, blackboard, seating arrangements, audio-visual aids, if required.

**in laboratories:** machines, equipment, tools, instruments, test samples, consumable

**in the library:** textbooks, reference books, journals/video cassettes and other referral material

- iv) Maintenance of equipment & facilities to ensure their continued availability & process capability. This includes the machines, equipment and instruments/tools in the workshops and laboratories used in the instructional process.
- v) Availability and use of monitoring and measuring resources.
- vi) Planning and undertaking Industrial/educational visits.
- vii) Placement, training and evaluation of students for Project Semester in private/public sector/industry/Institutes.
- viii) Continuous monitoring and maintenance of instructional process parameters.
- ix) Monitoring and control of any deviations of product and service quality or process parameters from design specifications.
- x) Planning, execution and control of the following co-curricular/extracurricular activities to achieve the quality objective w.r.t. development of student personality & physical/mental fitness.
  - \* Professional & literary societies organise specialized seminars, quizzes, contests, group discussions, panel discussions, and interaction between students, teachers and staff members to improve general communication and presentation skills.
  - \* Cultural societies like the Music & Dramatic Society (MUDRA) organising functions, i.e. IZHAAR, SATURNALIA, etc. & other self-actualization activities like the promotion of hobbies
  - \* Games and Sports
  - \* Others

All educational & training processes are unique, as their quality cannot be measured immediately after delivery. The instructional process and plan are accordingly documented. Duly qualified and trained faculty & technical staff are assigned to impart instructions to ensure desired results.

### 8.5.2 Identification and Traceability

The Institute shall use suitable means to identify “process outputs” where necessary to ensure conformity of products and services.

The Institute shall identify the status of “process outputs” for monitoring and measurement requirements throughout production and service provision.

The Institute shall control the unique identification of “process outputs” where traceability is required. It shall retain any documented information necessary to maintain traceability.

“Process outputs” are the results of any activities ready for delivery to a customer or an internal customer (e.g., the receiver of inputs to the following process). “Process outputs” include products, services, intermediate parts, components, etc.

The Institute has made arrangements for the identification of students & ensures the traceability of data related to them throughout the realization process.

The scope includes the following:

Scope	Responsibility
1) Student Identification through * Original Application Form * Original certificates * Roll No., which provides information about their batch, branch and a unique Roll number. * Semester Registration retained documented information * Identity cards are issued to all registered students (Hosteller/Day Scholars with address) every year. * Library Card	D.R. (A) D.R. (A) D.R. (A) D.R. (A) D.O.S.A. Librarian
2) Traceability of students' data through : * Class Schedule * Attendance retained documented information * Performance retained documented information	DOAA Instructor/Tutor D.R. (A)

The arrangements made in the Institute for Identification and Traceability:

- i) Preservation of the original application form of each student in a personal file.
- ii) Collection, verification, storage, preservation and return of original certificates.
- iii) Issuing a unique roll number depicting batch
- iv) Issuing an Identity Card (Hosteller/ Day Scholar with address)
- v) Maintaining retained documented information of registered courses (Number & Course Title)
- vi) Maintaining retained documented information of applicable schemes and syllabi.
- vii) Scheduling various classes/Time Table.
- viii) Maintenance of attendance retained documented information
- ix) Transferring grades earned in each subject to academic account and finally to transcripts of students.
- x) Compiling the retained documented information of courses cleared and grades obtained in the consolidation sheet for the award of final degrees to students.

Each department shall maintain the identification & traceability of registered students in their respective disciplines and will have appropriately retained documented information.

### **8.5.3 Property Belonging to Customers or External Providers**

The Institute shall exercise care with property belonging to customers or external providers while under the Institute's control or being used by the Institute.

The Institute shall identify, verify, protect, and safeguard the customer's or external provider's property provided for use or incorporation into products and services.

It shall report to the customer or external provider when their property is incorrectly used, lost, damaged, or otherwise found unsuitable.

Customer property can include material, components, tools and equipment, customer premises, intellectual property, and personal data.

The Institute has made arrangements for verification, storage and maintenance of customer-supplied products, provided for incorporation into the supplies or related activities.

The scope shall include the following:

- i) Items supplied by the customer (students) for evaluation.
- ii) Items the customer supplies during consultation/testing/short-term customized training programmes.

The responsibility for customer property is as under:

<b>Items</b>	<b>Responsibility</b>
* Original certificates	DR(A) & Registrar
* Tutorial & Home Assignments	Course Instructor/Tutors
* Laboratory Note Books	Laboratory Instructor
* Report of Project work	Project In charge
* Answer Books	Course Instructor, D.R. (A)

Arrangements have been made for the following:

- \* Receipt, verification & return of original certificates.
- \* Receipt, evaluation & return/preservation of laboratory notebooks, tutorials and home assignments.
- \* Receipt, evaluation, return/preservation of mid-semester tests and end-semester examination answer books.

#### 8.5.4 Preservation

The Institute shall preserve “process outputs” during production and service provision to the extent necessary to maintain conformity to requirements. Preservation can include identification, handling, packaging, storage, transmission or transportation, and protection.

The Institute has made arrangements for taking care of the students and their well-being by the following:

- i) Maintaining discipline on the campus, including college, hostels and playgrounds.
- ii) Making arrangements for games, sports and other facilities to keep them in good health.
- iii) Making available the health centre facility.
- iv) Counseling students who need it.
- v) Maintaining hygiene in hostel messes, college canteen, water coolers, etc.

### 8.5.5 Post-Delivery Activities

The Institute shall meet applicable requirements for post-delivery activities associated with products and services. In determining the extent of post-delivery activities that are required, the Institute shall consider

- a) risks associated with products and services;
- b) customer requirement;
- c) customer feedback;
- d) legal requirements;
- e) nature, use, and an intended lifetime of products and services;

### 8.5.6 Control of Changes

The Institute shall review and control changes for production or service provision to the extent necessary to ensure continuing conformity with requirements.

The Institute shall retain documented information describing the results of the review of changes, personnel authorizing the change, and any necessary actions arising from the review.

### 8.6 Release of Products and Services

The Institute shall implement planned arrangements at appropriate stages to verify product and service requirements have been met. Retain evidence of conformity with acceptance criteria. The release of products and services to the customer shall not proceed until the planned arrangements for verification of conformity have been satisfactorily completed unless otherwise approved by a relevant authority and, as applicable, by the customer.

The Institute shall retain documented information for traceability to the person(s) authorizing the release of products and services for delivery to the customer. The Institute shall also retain documented information for

- a) evidence of conformity with the acceptance criteria.
- b) traceability to the person(s) authorizing the release



## 8.7 Control of Nonconforming Process Outputs, Products, and Services

### 8.7.1

The Institute shall ensure process outputs, products, and services that do not conform to requirements are identified and controlled to prevent unintended use or delivery. The Institute shall take appropriate action based on the nature of nonconformity and its impact on the conformity of products and services. This is also applicable to nonconforming products and services detected after delivery of products during or after the provision of service.

The Institute shall deal with nonconforming outputs in one or more of these ways:

- a) correction
- b) segregation, containment, return, or suspension of the provision of products and services;
- c) informing the customer;
- d) obtaining authorization for acceptance under concession.

The Institute shall verify conformity to requirements when nonconforming process outputs, products, and services are corrected.

### 8.7.2

The Institute shall retain documented information that

- a) describes the nonconformity,
- b) describes the action taken,
- c) describes concessions obtained,
- d) identifies the person or authority that decided to deal with nonconformity.

Documented information has been established to ensure that non-conforming students or items of physical infrastructure are prevented from further processing and that their control provides for the identification, documented information, evaluation and disposition under intimation to all concerned.

The scope and responsibility for the conduct of non-conforming products and services include:

<b>SCOPE</b>	<b>RESPONSIBILITY</b>
1) Non-conformance identified during revision & verification of course design.	HEAD
2) Students' performance below the specified requirements during the instructional process.	HEAD, Chief Student Counselor, DOAA, DR(A)
3) Instructional delivery not conforming to specifications	Course Instructor, HEAD
4) Materials and services not conforming to the specified requirements	HEAD

Documented information includes the following:

- i) Students whose performance is below the specified requirement are identified & listed separately. Documented information for identifying such students, referring them to counselling services and counselling them through designated counsellors, HEAD, Course Instructor, DOAA, DOSA, and Director has been established.
- ii) Feedback regarding the conduct of courses is obtained from students through the "Student Response Survey" conducted by DOAA each semester. A specially designed object-oriented Performa is used for getting this feedback. Rating of faculty on the course, instruction, tutorial, practical & miscellaneous items are reported in descending order of instructions & feedback is sent to the individual faculty member for improvement. Students are also encouraged to give informal feedback during the instruction process. In addition, if any non-conformance is noticed during inspection or periodic audits of the process, the same is corrected.
- iii) Physical infrastructure, if found non-conforming, is corrected or disposed of as per documented information.

### **Review and disposition of the nonconforming product.**

Documented information also addresses the aspects of review and disposition of the nonconforming product. The outline of this documented information is given below:

- i) The students whose performance has not been up to the mark are counselled, their performance discussed in the Heads Group meeting and suitable corrective action taken, which may include:
  - \* Providing additional opportunities to improve and conform to requirements
  - \* Termination of the programme.
- ii) Regarding non-conformance of instructional performance with the instructional design or non-conforming performance of the instructor, action is taken based on documented information /norms & rules of the Institute. Actions entail giving feedback to the concerned instructor and/or planning and implementing corrective action under intimation to the Head.
- iii) Regarding physical infrastructure, the disposition of non-conforming products or services is carried out by taking up and examining the matter at the appropriate level. Action may include maintenance or rejection of goods or services.

## 9 Performance evaluation

### 9.1 Monitoring, measurement, analysis and evaluation

#### 9.1.1 General

The Institute shall determine

- a) what needs to be monitored and measured
- b) methods for monitoring, measurement, analysis, and evaluation needed to ensure valid results
- c) when the monitoring and measuring shall be performed
- d) when the results from monitoring and measurement shall be analyzed and evaluated.

The Institute shall also evaluate the performance and effectiveness of the quality management system. It shall retain appropriate documented information as evidence of the results.

The academic section meticulously maintains all academic retained documented information of the students. The student's performance is monitored and graded per the well-defined academic documented information. The instructor monitors the performance continuously and reports to the academic section at least twice a semester. The Instructor grades the students at the end of the semester, and this evaluation is analyzed by the Board of Examiners (BoE).

#### 9.1.2 Customer Satisfaction

The Institute shall monitor customer perceptions of the degree to which their needs and expectations have been fulfilled and determine the methods for obtaining, monitoring, and using this information.

The Institute has made arrangements to monitor information related to customer perception to ascertain whether the Institute has met customer requirements. The information is collected using the following established mechanism:

- a) Feedback from the students at the end of every semester on various aspects of the course taught to them.
- b) Feedback collected from the industry during the campus interviews.
- c) Feedback from students after they spend six months in the industry for their project semester.

d) Feedback from the six months project semester of the students on the quality of students and their usefulness to the industry.

The information thus collected is summarized and analyzed, and the analysis results are used as feedback to improve the system further.

### 9.1.3 Analysis and Evaluation

The Institute shall analyze and evaluate appropriate data and information arising from monitoring and measurement. Use the results of the analysis to evaluate

- a) conformity of products and services,
- b) degree of customer satisfaction,
- c) the performance and effectiveness of the quality management system
- d) if planning has been effectively implemented
- e) effectiveness of actions taken to address risks and opportunities
- f) performance of external providers
- g) need for improvements within the quality management system shall also be evaluated.

The Institute has made arrangements to determine, collect and analyze appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made. This includes data generated from monitoring and measurement and other relevant sources. Data analysis provides information related to customer satisfaction, conformity to product and service requirement characteristics, and trends of products and services, including opportunities for risk assessment and mitigation. Presently analysis of data is being carried out in the following areas:

Scope	Responsibility
Awarding grades	Instructor
Success rate	DOAA
Attrition rate	DOAA
Research Output Trend Analysis & Correlation	DoRDC
Student Response Survey	DOAA
Analysis of the effectiveness of counselling	Functional Head
Campus Interview retained documented information and co-relation with students' performance	Functional Head

## 9.2 Internal Audit

### 9.2.1

The Institute shall conduct internal audits at planned intervals (at least once in twelve months) to provide information on whether the quality management system

- a) conforms to
  - 1) the organization's requirements,
  - 2) the requirement of ISO 9001:2015 standards
- b) is effectively implemented and maintained

### 9.2.2

The Institute shall

- a) plan, establish, implement, and maintain an audit program, including frequency, methods, responsibilities, planning requirements and reporting. While making an audit program, consideration shall be given to the importance of concerned processes, changes impacting the Institute, and previous audits' results.
- b) define audit criteria and scope for each audit
- c) select auditors and conduct audits for the impartial and objective audit process
- d) ensure the results of audits are reported to the relevant management
- e) take necessary correction and corrective actions without undue delay
- f) retain documented information as evidence of audit program implementation and audit results.

The Institute conducts internal audits annually to verify whether the quality management system conforms to the established QMS and to determine that it is effectively implemented and maintained.

The scope covers all activities of the quality system affecting the quality of instruction. The responsibility for scheduling internal quality audits lies with the MR. The arrangements made for conducting internal audits are:

- i) Documented information to define the responsibility and requirements for planning and implementing internal quality audits that have been established and maintained.
- ii) The frequency of the internal quality audits has been decided based on the status and importance of the activity, but in no case shall the frequency be less than once in twelve months.

- iii) The audit of an area/activity would be carried out by trained personnel other than those directly responsible for the said activity.
- iv) The results of the internal quality audits are recorded, and a report is given to the concerned functional Head.
- v) The concerned functional Head plans and takes timely action on the reported non-conformities.
- vi) Follow-up audit is conducted to verify and record the implementation and effectiveness of the corrective action(s) taken.
- vii) The results of the internal quality audits are sent to MR for management review and record.
- viii) The selection of auditors and conduct of audits is made to ensure the objectivity and impartiality of the audit process. Auditors do not audit their work.

### **MONITORING AND MEASUREMENT OF PROCESS**

TIET applies suitable methods for monitoring and measuring processes of the quality management system. This monitoring and measurement demonstrate the ability of the processes to achieve planned results. The established methods include:

- i) Maintenance of course files by every teacher. The checklist of the documents to be attached and their order is prepared.
- ii) Filling up course coverage Performa by each teacher and its counter checking by the head of the department.
- iii) Surprise checks by HOD and other officers to ensure that classes are held.

### **Monitoring and measurement of the product**

The Institute has made arrangements for evaluating and meeting the specified requirements for students at entry, during the instructional process, and finally before qualifying for the award of a degree, as well as for other physical infrastructure so that accepted students, instructions & materials are processed further.

The scope and responsibility for monitoring and measurement of products and services are as under:

Scope	Responsibility
1) Students: * Entrance/diagnostic examination	DOAA, HOD
* Continuous evaluation is conducted during the process.	DOAA, Course Instructor
* Summative evaluation at the end of the Instruction	D.R.(A)
2) Physical infrastructure * Inward and in-process inspection	HOD

### Entrance/Diagnostic Examination

Admissions to various undergraduate are made through JEE/(10+2 score) and post-graduate programmes through an entrance/diagnostic examination. Eligibility information for each programme is contained in the Institute Regulations and the Information Brochure issued annually.

### Formative evaluation as conducted during the Instruction Process

The Instruction Process shall be reviewed & verified for adequacy. Continuous evaluation of students shall be carried out through examinations and/or other modes during the delivery of instructions.

The evaluation process shall include the following:

- i) Audit plan to ensure that instructors & tutors follow a laid down plan for imparting instructions.
- ii) Mid-semester test, announced or unannounced quizzes, and practical viva-voce examinations.
- iii) Evaluation of home assignments, laboratory work, tutorial work and participation in class discussion/seminars
- iv) Final/End Semester Examination conducted for all undergraduate & postgraduate courses in which student is registered each semester as per established documented information.



### **Summative evaluation at the end of the instruction process**

A checklist proforma has been established and is used to review and verify that the students have completed (fulfilled) all requirements for the award of the degree.

### **Inspection of physical infrastructure at the inward/in-process stage**

Inspection of all physical infrastructures procured by the Institute for use in the instructional process or for further processing shall be carried out as per documented information.

## **9.3 Management Review**

### **9.3.1 General**

The Top Management of the Institute shall review the Institute's QMS at planned intervals (once in twelve months) to ensure its continuing suitability, adequacy, and effectiveness, and it shall be aligned with the strategic direction of the Institute.

### **9.3.2 Management review inputs**

The Management Review shall be planned and carried out considering

- a) status of actions from previous management reviews,
- b) changes in external and internal issues relevant to QMS,
- c) adequacy of resources
- d) opportunities for improvement
- e) effectiveness of actions taken to address risks and opportunities
- f) information on quality performance and effectiveness, including trends in
  - 1) nonconformities and corrective actions,
  - 2) customer satisfaction and feedback from relevant interested parties,
  - 3) monitoring and measurement results,
  - 4) audit results,
  - 5) the extent to which quality objectives have been met,
  - 6) process performance and conformity of products and services,
  - 7) the performance of external providers

### 9.3.3 Management review outputs

Outputs from the management review shall include decisions and actions related to

- a) opportunities for improvement,
- b) any need for changes to QMS,
- c) resource needs.

The Management Representative shall retain documented information as evidence of the results of management reviews.

## 10 Improvement

### 10.1 General

The Institute shall determine and select opportunities for improvement and implement any necessary actions to meet customer requirements and enhance customer satisfaction.

These actions shall include

- a) improving products and services to meet requirements, as well as address future needs and expectations;
- b) correcting, preventing, or reducing undesired effects;
- c) improving the performance and effectiveness of the quality management system.

The Institute, through feedback from the employing organisations, has determined the opportunities for improvement in the following:

- updating the curriculum as per the industry demands
- provision for improving soft skills like communication, teamwork, social empathy, leadership traits etc.
- provision of rigorous hands-on experience through projects and experiential-based learning

Continued efforts are made at every level through curriculum revision, improvement in the teaching-learning process and dedicated sections like a centre for training and development.

## 10.2 Nonconformity and Corrective Action

10.2.1 When a nonconformity occurs, including any arising from complaints, the Institute shall

- a) react to the nonconformity and, as applicable
  - 1) take action to control and correct it;
  - 2) deal with the consequences.
- b) evaluate the need for action to eliminate the causes of the nonconformity so it does not recur or occur elsewhere, by
  - 1) reviewing and analyzing the nonconformity,
  - 2) determining the causes of the nonconformity
  - 3) determining if similar nonconformities exist or could potentially occur.
- c) implement any action needed
- d) review the effectiveness of any corrective action taken;
- e) update risks and opportunities determined during planning, if necessary
- f) make changes to the quality management system, if necessary.

The corrective actions shall be appropriate to the effects of the nonconformities encountered.

10.2.2 The Institute shall “retain” documented information as evidence of

- a) the nature of the nonconformities and any subsequent actions taken
- b) results of any corrective action.

The Institute ensures that the recurrence of non-conformities or discrepancies, which are reported to have occurred at some point or are likely to occur, is prevented. This is ensured by analysing the problem, finding its root cause and eliminating it.

The scope includes:

Scope	Responsibility
1. Customer (students) complaints/suggestions/ comments	Head/DOAA
2. Success/Failure rates	DOAA/Head
3. Non-conformities reported in instructional design and/or delivery	Head/DOAA/Director
4. Non-conformities in the use of physical infrastructural facilities	Head/DOSA/Registrar
5. Non-conformities as a result of Internal Quality Audit	MR

Documented information has been established for the following:

- i) To handle customer (students) complaints, suggestions & comments, feedback from instructors, other sources like industries, companies coming for campus recruitment companies, etc. and reports regarding product and services non-conformity, if any.
- ii) To review the non-conformity and investigate the cause of reported non-conformities and record the results of the investigation.
- iii) To evaluate the need for action, determine and implement the decision to take corrective action effectively to eliminate the cause of non-conformities and record the results.
- iv) To apply controls to ensure non-recurrence of reported non-conformities.
- v) Review the effectiveness of the corrective action taken.

It is ensured that the corrective action conforms to the degree of the problem and is commensurate with the risks involved.

The action may include revision or discontinuance of a course, replacement of an instructor/tutor, if warranted, change in the instructional schedule if necessary, delivery methodology, etc.

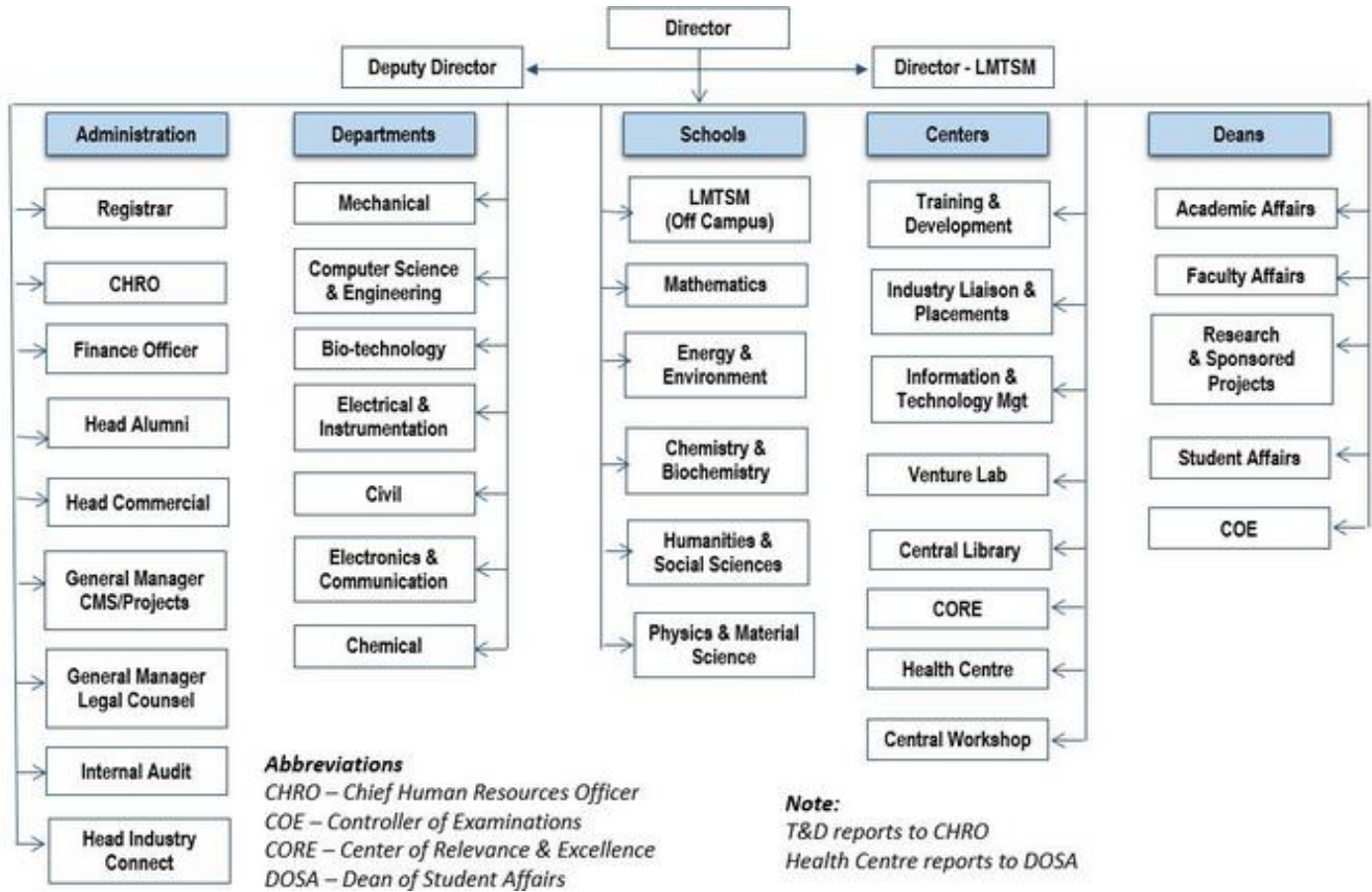
### 10.3 Continual Improvement

The Institute shall continually improve the quality management system's suitability, adequacy, and effectiveness. The Institute shall consider the results of analysis and evaluation, and the outputs from the management review, to determine if some needs or opportunities shall be addressed as part of continual improvement.

The Institute continually improves the effectiveness of the quality management system through the use of quality policy, quality objectives, audit results, analysis of data, risk assessment and mitigation, and management review. At the time of every management of review, the trends are ascertained through the measure of each objective and its comparison with the earlier level of that objective. Action points are then listed to continually improve the system. The status is reviewed in the subsequent management review meetings.

ORGANIZATIONAL STRUCTURE

Annexure 1



**Flow Chart for Teaching Activity**

**Annexure II**

