QUALITY SYSTEMS MANUAL (QSM-I)

Contents and Issue Status of Manual

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QSM-1 Distribution List

1. Director
2. Dean (Administration)
3. Dean (Academic Courses)
4. Dean (Academic Research)
5. Dean (ICSR)
6. Dean (Students)
7. Registrar
8. Deputy Registrar (Academic)
9. Librarian
10. Chief Techno Economic Officer (ICSR)
11. Head, Computer Centre
12. Workshop Superintendent i/c
13. Head, Dept of Civil Engg. (UoP)
14. Head, Mechanical Engineering
15. Head, Computer Science
16. Head, Bio Technology
17. Deputy Registrar (Administration)
18. Deputy Registrar (Finance & Accounts)
19. Deputy Registrar (Stores and Purchase)
20. Chief Security Officer
21. Chairman, E&WC
22. Executive Engineer
23. Head, CEC
24. Management Representative
25. TuV

CONTENTS

IITM's VISION, MISSION, QUALITY POLICY AND CORE VALUES

OUR VISION
To be an academic institution in dynamic equilibrium with its social ecological and economic environment striving continuously for excellence in education, research and technological service to the nation.

OUR MISSION
* To create and sustain a community of learning in which students acquire knowledge and learn to apply it professionally with due consideration for ethical, ecological, and economic issues
* To pursue research and disseminate research findings
* To provide knowledge-based technological services to satisfy the needs of society and the industry
* To help in building national capabilities in science, technology, humanities, management, education and research

QUALITY POLICY
To pursue global standards of excellence in all our endeavours namely teaching, research, and consultancy and continuing education and to remain accountable in our core and support functions, through processes of self-evaluation and continuous improvement.

CORE VALUES
In the pursuit of it's mission IIT M will
* Develop human resources to serve the nation
* Recognize teaching as a unifying activity
* Nurture integrity, creativity and academic freedom
* Retain a willingness to experiment with new paradigms

July 2002

Sd/-
M S Ananth
Director

INTRODUCTION

Indian Institutes of Technology were set up by an Act of Parliament in 1961 with a specific declaration as "Institutes of National Importance". These were the IITs at Bombay (Mumbai), Delhi, Kanpur, Kharagpur, Madras (Chennai) set up in sixties and at Gauhati since 1993. IIT Roorkee has been established in 2001 as the seventh IIT in our country. Each of the IITs is an autonomous body under the administrative control of a respective Board of Governors appointed by the Government of India. The IITs were established in order to ***provide leadership in technology innovation, train competent technical manpower and promote state of the art technology in the country.*** These institutes were to ***contribute in upgrading the quality of engineering education in India.*** It was anticipated that IITs should remain selective, be financed adequately and have their priorities spelt out within the overall direction of growth. It was felt that IITs would develop their own specific culture for promoting excellence.

Indian Institute of Technology, Madras (IIT-M) was set up by the Government of India on a 250 hectare campus near Guindy National Park in South Madras in 1959 with German technical and financial assistance. IIT-M is an autonomous institution that is residential and involved in ***teaching undergraduate and post graduate programmes in engineering and science, organising continuing education programmes for persons from other institutions, carrying out basic and applied research in engineering, science, humanities and social sciences and sponsored and applied research for industries and various government departments***. The main stakeholder, the primary services to be provided to these stakeholders and the necessary administrative support services are listed in Annexure A. The total student strength is about 3000, and the teaching faculty and those of the supporting staff strength are about 380 and 1200, respectively. The Government of India primarily supports this

educational service activity for the student with the contract placed and managed by MHRD. It is recognised that the Government of India is acting as an agent for the community at large. The main beneficiaries of this activity are the students, employees of the Institute, industries and the people of India.

Major units and the processes, which take active part in IIT-M as a Research University, are shown in two flow diagrams. Annexure B shows customers, inspection processes and end users in relation to Academic Programmes. Similar flow diagram for Industrial Consultancy and Sponsored Research activities is shown in Annexure C.

SCOPE AND FIELD OF APPLICATION

The scope of the Quality Management System covered under this manual (QSM-I), is applicable to the activities of the following sections that directly serve, support and enhance the academic process of the institute.

1. Academic Section
2. User-Oriented Programs (UOP)
3. Library
4. Industrial Consulting and Sponsored Research (IC&SR)
5. Computer Centre
6. Workshop

This Quality System Manual (QSM-I) has been formulated in line with the Quality Policy statement of the IIT-M at Chennai. It outlines consistent and uniform procedures adopted at IIT-M for the fulfilment of these objectives. This Manual defines how effective control is established by the use of formal written procedures.

REFERENCES

ISO 9001 Series 2000 and their National and International equivalents.

4. <u>Quality Management System</u>
<u>4.1 General Requirements</u>

The main aim of a Research University such as IIT-Madras is to provide high quality education and to carry out Industrial Research and Consultancy to solve problems of topical interest. Considering the Residential nature of IIT-M, there are a large number of Central Service Units, which take part in day-to- day activities of the Institute. The main services are as listed under:

1. Academic	2. Administration
3. Estate-Works & Engineering Unit	4. Finance and Accounts
5. GATE	6. Guest Houses
7. Gymkhana	8. Hospital
9. Hostel Management	10. IC & SR
11. Internal Audit	12. JEE
13. Library	14. Security
15. Stores & Purchase	16. Training & Placement
17. Workshop	18. Computer Centre

Amongst the list above, only those support services, which directly contribute towards fulfilling the main aims and objectives of the Research University, are considered for ISO 9001 certification under the scope of this manual. These primary support services are *Academic Section, Central Library, Central Workshop (contribution towards academic programmes in terms of course work and assistance in fabrication for experimental work), Computer Centre, and Centre for Industrial Consultancy and Sponsored Research.*

Academic Section:

Main Business: Academic Timetable (Instruction Days, Examination Schedule, Holidays etc.), BAC – BAR Meetings, Preparation & Issue of Grade Cards, GTC – DC Meetings, M.S., Ph.D. Examiners Reports, Viva Voce Examinations, Convocation, Course and Teacher Evaluation, Academic MOU, User Oriented Programmes, Annual Report Preparation for submission to the Parliament.

Quality Aspects: Adhering and Implementing Time –Table and schedules, Error Free and Safe Record Keeping and Distribution of the same to the Customer, Feedback to the Teacher to enable him/her to excel in Teaching.

Library:

Main Business: Procurement of Text Books, Periodicals and Journals as suggested by the User, Providing Library Access to Valid Users, Providing Information to the Users about Latest Publications, Issuing Library Tickets, Removal of Obsolete Books, LAC Meeting, Internet and Similar Modern Information Access Tools

Quality Aspects: Providing timely service in terms of book – Journal Issues, Maintaining of Books, Journals and Periodicals, Removal of Obsolete Issues

Computer Centre:

Main Business: Access to the Centralised Computing facilities and campus network Suitable Software, Data Processing for Auxiliary Support Services, maintaining Student, faculty and Staff Accounts, PC Maintenance Cell.

Quality Aspects: Assured Service with Minimum Downtime due to failure, Upgrading Facilities and ensuring No Misuse of the System, Attend PC Repair Requests on Call Basis

Workshop:

Main Business: Familiarising B.Tech. Students in Conventional and Modern

Workshop Practice, Assistance in Fabrication of UG/PG and Project related work.

Quality Aspect: Imparting Academic Content of Workshop Practice, Fabrication as per the Requirement of the Users.

User Oriented Programmes: (A sub-set of Academic Programs)

Main Business: Developing PG Courses to Suit the Needs of the industry (ies) in the mould of existing Institute Curriculum

Quality Aspect: Customer Satisfaction, Continuation, Expansion and Upgradation of Activity

IC & SR:

Main Business: Nodal Agency to Provide Support Service to Projects, MOU with Industries, Setting up R & D Cells and Technology Missions, industry Associateship Scheme

Quality Aspect: Quick and Timely Processing of Project Related Files, providing Interface between IIT-M Project and Industries, Technology Appreciation Programme in Relevant Areas by Internal / External Faculty, Select Service on Demand to Industrial Associates.

The main process is education – teaching and research. While most of the activities are carried out in-house, some are outsourced. These include hiring part-time and guest faculty in academics; external fabrication and testing where relevant in ICSR and annual maintenance contract in computer centre. These are addressed in the respective procedure manuals.

4.2. Documentation requirements

4.2.1 General

The Primary educational support services, which are subjected for ISO 9000 certification under the scope of this manual, have their own detailed

system/procedure/work manuals.

The quality management system documentation includes the institute quality policy, the Quality manual, documented procedures required by the standard, documents needed for control and records.

4.2.2 Quality Manual

This Quality System Manual (QSM-I) is the apex manual prepared for six sections which have a direct role towards the support and enhancement of the academic process, of the institute.

Each of the six sections/centres identified in the scope of the system have individual procedure manuals detailing the activities/processes in each section.

The exclusions applicable to each section are also indicated in the respective procedure manuals.

The six mandatory documented procedures as required by ISO 9001:2000 form part of this Quality Manual and is also defined in the individual department procedure manuals.

4.2.3 Control of Document

This Quality Systems Manual (QSM-I) is approved by the Director and issued by the Management Representative. The latest version of the document is available on the Institute Computing Environment (ICE). All faculty and staff have access to this environment through personal login ID's. The update of this document on ICE will be done only through the written request of the Management Representative. Those listed in the distribution list will be informed in writing when a new version in uploaded.

Document control of procedure manuals and other documents concerning the sections is with the head of the section. The section heads are as follows:

1. *Academic Section: Deputy Registrar (Academic)*
2. *Library: Librarian*
3. *Industrial Consulting and Sponsored Research: Chief Tech. Econ. Off.*
4. *Workshop: Workshop Superintendent*
5. *Computer Centre: Head, Computer Centre*
6. *User-Oriented Programs: Dean Academic Courses*

Each section head also documents and maintains the following in detail:

1. *Master list of documents*
2. *Records.*

When there is a change in the procedure to be reflected in the manual, the head of the section makes the changes and circulates the new version to the people who have controlled copies of the documents.

A master list of documents for a section is available with the Head of the section identifying the document name, authority to approve, location and current revision status. All these documents are issued and recorded by the section heads.

Document coding and numbering for the documents maintained by the Sections are indicated in the respective procedure manuals.

Documents and Data Changes:

- *The master copy of the quality system manual will be reviewed and updated by the Management Representative and if updated, these will be issued to electronically & those listed in distribution list will be informed in writing. When more than five revisions are made, the updated document gets the next issue number.*

- *The master copy of each section's manual & procedures will be reviewed for updating by the respective Head and if updated, these will be issued to the authorised persons having controlled copies listed in distribution list. When more than five revisions are made, the updated document gets the next issue number.*

- *For manuals issued in hard copy form, all obsolete documents are marked OBSOLETE and confirmation is sent to all holders. The documents stamped CONTOLLED are issued with issue number and revision number.*

4.2.4 *Control of Quality Records*

The Management Representative will be responsible for the following records:

1. *Minutes of Management review meetings*
2. *Records of communication with the sections and with the auditing agencies.*
3. *Internal/External Quality Audit Reports and Records of corrective and preventive action on non-conformities*

The above records will be retained by the Management Representative for a period of three years and disposed after the retention period.

The section heads will be responsible for control of quality records in their respective sections. The procedure manuals outline the control for identification, storage, protection, retrieval, retention time and disposal of records.

5. Management Responsibility

5.1 Management Commitment

The management of IIT-M oversees the functioning of the Institute in such a manner that the processes associated with both the formal and non-formal education, research and consultancy assignments for the industry as well as governmental agencies and technical, administrative and human factors affecting quality of these services are fully under control. To this effect, its policies are well defined, with timely reviews, control of system and internal quality audits to ensure compliance and continued effectiveness.

5.2 Customer Focus
The customers to the institute are the following:

1. Student
2. Parent
3. Industry
4. Alumni
5. Funding Agencies
6. Government
7. Society

The activities of the various sections/centres covered by this manual are executed keeping in mind the customer requirements. Specific activities such as Consultancy, Sponsored research and User Oriented Programs have a direct customer requirement that is well defined and are to be met.

5.3 Quality Policy

The Quality Policy is enunciated by extensive participatory involvement of the faculty and staff of the Institute. It is communicated to all the faculty and staff of the institute through visual displays at various locations, pocket calendars and as a part of large number of internal documents. Towards understanding of ISO system, various appreciation programs are conducted for the benefit of the faculty and staff of the Institute. The quality policy is complied with at all levels in the organisation. This is assessed and reviewed periodically by the Management for compliance and commitment to quality.

Quality Policy of IIT-M is:

To pursue global standards of excellence in all our endeavours namely teaching, research, and consultancy and continuing education and to remain accountable in our core and support functions, through processes of self-evaluation and continuous improvement.

5.4 Planning

5.4.1 Quality Objectives

The Quality Objectives and measurable parameters for the various sections are as follows:

Section	Quality Objectives/Activities	Measurable Parameters
Academic Section	Academic Calendar Admissions Preparation of roll list and mark list Issue of grade cards and transcripts	Adherence to Schedules
Central Library	To provide and promote high quality information resources, services and products	Increased Availability of resources Increased Utilization of resources
Central Workshop	Increase fabrication work Student training	Number of work orders Reject/rework to be minimized Number of students trained Reduce interruptions
Computer Centre	To continuously improve the Networking facilities in the Campus and achieve excellence in the Service. To provide State of the Art of Hardware and Software for Research and Teaching needs of the Institute.	To progressively extend the Networking facilities on campus. Increased utilization of resources

Industrial Consultancy and Sponsored Research Centre	Processing of project proposals	Time to process
	Adhoc appointments	Time to process
	Purchase order placement	Time to place order
	Funds receipt	
	Utilization statement and statement of accounts	Time to process
User Oriented Programmes	Offer Program of Relevance to industry	Program initiation time Customer Feedback

The Quality Objectives and measurable parameters for the various sections are also given in the respective procedure manuals

5.4.2 Quality Management Systems Planning

The Quality Management Systems of the various sections/centres have been established keeping in view the Quality Objectives and Customer requirements. The effective functioning is monitored by various Management appointed committees and by the Heads of Departments' meetings.

5.5 Responsibility, Authority and Communication

5.5.1 Authority and Responsibility

The organisational structure at IIT-M is shown in Annexure D. This structure, from the Chairman, Board of Governors (BOG) up to the level of administrative unit functionaries, namely Deputy Registrars, is shown in Annexure D. The major functions and their integrated quality responsibilities and roles are listed below. Appropriate portions are taken from the Act and Statutes of the Institute which describes major functions, authority and responsibility for the Chairman BOG, Director, Deputy Director, Registrar and Head of Departments.

Chairman, Board of Governors - Chairman ordinarily presides over the meetings of the Board of Governors and at the Convocation of the Institute. He / she ensures that the decisions taken by the Board are implemented. He / she exercises other powers and perform all duties as assigned to him / her by the Act and Statutes. The Chairman has the power to fix initial pay of an incumbent, and send member of the staff outside the country for training. He executes the contract between the Director and the Institute.

Director - The Director of the Institute is the principal academic and executive officer of the Institute and is responsible for the proper administration of the Institute for the imparting of instruction and maintenance of discipline. The Director provides annual reports and accounts to the Board and performs all such other duties and exercise powers as assigned in the Act and Statutes.

The Senate comprising all Professors of the Institute decides the academic policy of the Institute. It controls and approves the curriculum, courses, examination and results. From time to time, it appoints committees to look into specific academic matters arising out of Senate meetings. The teaching, training and research activities of various departments at the Institute are periodically reviewed to improve facilities and maintain standards. The Director of the Institute is ex-officio Chairman of the Senate.

The institute has six Deans appointed by the Director, with the approval of the Board of Governors to assist the Director in carrying out work pertaining to specific aspects of management of the Institute. They are also in charge of co-ordinating various activities assigned to them by the Director. The important responsibilities assigned to the six Deans are given below whereas detailed activities performed by each of the Deans are listed in Annexure E.

<u>Dean -Administration</u> - Administrative matters pertaining to the faculty, Purchase

<u>Dean - Academic Courses</u> - Academic Courses and Programmes.

<u>Dean -Academic Research</u> - Academic Research and Programmes.

<u>Dean -IC & SR</u> -Industrial Consultancy & Sponsored Research.

<u>Dean -Students</u> - Non Academic matters pertaining to Students.

Dean-Planning – Infrastructure Planning including physical and electronic, Alumni Affairs

<u>Registrar</u> - Registrar is the custodian of all the records, the common seal, the funds and such other property of the Institute as the Board shall commit to his/her charge. He/She act as the Secretary to the Board and Senate, and is responsible to the Director. He/She also performs all duties assigned to him by the Act and Statutes and by the Director.

There are normally <u>six Deputy Registrars</u> and <u>ten Assistant Registrars</u>, who administratively report to the Registrar and whose primary work responsibilities are clearly defined by their titles: Academic, Administration, Finance and Accounts, Industrial Consultancy and Sponsored Research, Stores and Purchase, and Training and Placement. These Deputy Registrars and Assistant Registrars also assist the concerned Deans in day to day activities.

In the Centre for Industrial Consultancy and Sponsored Research, there is a Chief Techno Economic Officer (CTEO) who reports to the Dean - IC & SR and the Deputy or Assistant Registrar in IC & SR reports to CTEO. Instead of Deputy Registrar, an Assistant Registrar assists the Hostel Management unit and the Dean - Students.

Heads of Departments - The thirteen Academic Departments are placed in charge of a Head from among Professors, Associate Professors and Assistant Professors. The Head has overall responsibility for the working of the Department, subject to the general control of the Director. He / she carry out the decisions of the authorities of the Institute. All the Academic

Departments have more or less similar functional structure which is shown in Annexure F.

Heads of Centres - Each of the Research and Service Centres are placed in charge of a Head from among faculty member of the Institute. The Heads are responsible for the day-to-day functioning of these facilities within the budgetary allocation from the Institute. General administration of the Centre is subject to the overall administrative directives of the Director. He / she carries out additional appropriate activities from the list above. Research Centres take part in academic Activities of the Institute such as offering courses, guidance for post-graduate project work etc. Service Centres are responsible for catering to the needs of the various academic departments and non academic units of the institute.

5.5.2 Management Representative

  The Management Representative is appointed by the Director to establish, implement and maintain the quality system in the institute. The Management representative is a faculty member of the institute who has this additional responsibility. He/She also reports the performance of the quality system in terms of audit reports, quality initiatives and continuous improvement measures. He is also the co-ordinating representative for activities concerned with external agencies for inspection arrangement through the Registrar of IIT-M.

Responsibilities of Management Representative:
        Management Representative of I.I.T., Madras has the overall responsibility, and authority for ensuring that:

26.   The provisions of IIT-M's Quality System shall be implemented, maintained and complied with at various sections of the Administration,

through the Quality Manager of the Institute Administration.

27.   Issue QSM-related document control procedures.
28.   Issue IQA schedules in consultation with Section Heads and authorised by the Dean Administration, maintain records of IQA, follow-up of proposed corrective action and present IQA reports at the Review Meetings.
29.   Convenes Management Review Meetings for Administration and maintains records and proceedings.
30.   Prepares report on the performance of the Quality Systems to the Management for review and implementation of Quality System, where required.
31.   Co-ordinates with External Certifying Agencies.

Registrar, I.I.T., Madras who is designated as the Quality Manager for the Institute Administration supports the Management Representative in the implementation of Quality System in the Institute. The defined responsibilities of the Quality Manager of the Institute Administration shall be to interact closely with Deputy Registrars at the section level, relating to QSM, implementation and compliance.

The Deputy Registrar (Academic) is designated as the Administration Representative vide letter no. F.R/150/4/97dated May 14, 1997 to assist in co-ordinating the efforts as required by the Management Representative and the Quality Manager.

5.5.3 Internal Communication

The institute has different channels of communication within the organization. Decisions of various bodies are communicated through minutes to the concerned departments/centres/sections. Most circulars and information is communicated by the Registrar, Deputy Registrar (Academic) and Deputy Registrar (Administration). The Heads of Departments communicate to the faculty and staff of the departments.

These are through internal despatch system, personalised communication and also in electronic form. The institute has a campus network with e-mail facility to every faculty and to the officers. Internal communication within the institute is also through e-mails.

5.6 Management Review

5.6.1 General

Management Review: Management Review meetings are conducted, normally twice a year to specifically review Quality related activities in the institute. The members of this review committee are:

1. The Director (Chairman)
2. The Deans
3. The Registrar
4. The Management Representative
5. Administration Representative (QSM-I)

5.6.2 Review Input

The inputs to the Management Review are:

1. Results of Audits
2. Customer Feedback
3. Process performance
4. Training Programs
5. Status of preventive and corrective actions
6. Follow up of actions from previous meetings
7. Changes affecting the Quality system and
8. Improvement initiatives

5.6.3 Review Output

The output from the review would be

1. Improvement of effectiveness of system
2. Action plans for improvement

3. Resource needs

In addition to Management reviews other reviews are conducted in the institute in the following ways:

1. Deans committee meeting conducted every week.
2. Heads of Departments, centres and sections meetings conducted every month.
3. Board/Committee level meetings at each section level conducted at different periods based on section requirements.

The Monthly activities of the ISO-9000 systems are reported in the monthly HOD's meeting also. In addition, all the units covered under this certificate make monthly presentation on the group activity at this meeting.

6. Resource Management

6.1 Provision of Resources

The institute provides the following resources to meet the requirements of the Quality System

1   Qualified Staff and trained Technical and Supporting Manpower.
2   Basic infrastructure facilities in terms of space, electricity, power, water etc necessary for academic and R&D activities.
3   Well-equipped Laboratories and facilities necessary for efficient delivery of Education and HRD activities.
4   Well-equipped central facilities such as the workshop, photographic section, computer centre, library with access to wider national and international data base etc.

In addition, provision to source specialized/industry-based expertise & resources to enhance academic quality activity is available. This is in the form of lectures for courses and reviewers for research thesis and dissertations.

6.2 Human resources
6.2.1 General
Based on norms specified by the Ministry and Statutes, human resource requirements as well as qualifications for teaching as well as non-teaching staff are specified. The institute attempts to maintain staffing levels as prescribed. Where necessary there is provision for recruit temporary help or consultants.

6.2.2 Competence Evaluation and Training

The system of training activity at IIT-M is outlined in this section.
Various avenues are available for the Faculty for lifetime self-learning and training in the form of research paper presentations in the conferences and seminars at the national and international level. In addition, Faculty may undertake sabbatical leave or participate in inter-institutional exchange programs for gaining expertise. Institute has number of MOUs with leading Academic and Research establishments all over the world and individual Faculty is encouraged to avail of these facilities. This scheme best operates at individual level and details of all such activities undertaken by the faculty are listed in the Annual Report of the Institute.

IIT-M also carries out broad based quality related as well as job oriented specialised training programme for Institute staff with the intention of providing improved customer service and better interface with internal and external environment. Depending on the required expertise, these programs could be in house or organised with the help of external experts. For

specialised programmes where adequate facilities are not available in the Institute, selected personnel is sent to outside agencies. The training needs of the personnel shall be identified by the section head and presented to the Professor in-charge HRD who co-ordinates all the necessary activities. Alternately, training needs may be identified keeping in view the Institute priorities, and programme conducted internally or externally. Records of the training programme shall be maintained by the Professor in-charge HRD and the section head. The usefulness of the training received shall be evaluated periodically in Management Review Meetings.

6.3 Infrastructure
The resources provided by the institute have been listed in 6.1. In addition, the infrastructure includes:

1. Degree programmes, structure, and course syllabi designed to achieve the desired objectives and dissemination of relevant information.
2. Short Term Courses or User Oriented Programmes to meet the requirements of the specific Industries and Government agencies.
3. Support Services necessary for implementing academic and customer related administrative activities.

Further resources available for providing expertise to conduct sponsored research and consultancy for the industry and the governmental agencies are:

1   Administrative support services to carry out project related manpower recruitment, equipment purchases, maintenance of accounts etc.
2   Monitoring IC&SR activities in terms of customer interface and subsequent progress, industry co-operation, visible research output vide publications, patents etc.
3   Conducting technology appreciation programmes for Industries so as

to publicise expertise available at IIT-M and disseminate latest knowledge for the benefit of the Industries.

The infrastructure of the institute also includes state-of-the-art buildings for education, research facilities and conference halls. The campus wide network, excellent computing facilities in the computer centre, class rooms equipped with projection facilities are also part of the infrastructure of the institute.

6.4 Work Environment
Among the sections covered in this manual, central library requires noise free environment, which is provided in the building. The Central Workshop requires that the shop floor is kept neat and that the machines and measuring equipment are maintained and calibrated respectively. The workshop superintendent takes care of this. The Computer Centre requires uninterrupted power supply and air conditioned environment, which is provided by the institute

7. Product Realization

Each section while supporting the academic process has variation in product. Each section manuals gives details of product realization process followed:

The main products of each section are as follows:

Academic Section – Service to faculty, staff & students and Student
IC&SR – Service to internal & external customers
Library – Service to faculty, staff, students & external customers
Workshop –Students & Fabrication services
Computer Centre – Computing Services for faculty, staff & students

User-Oriented Programs – Students qualified for identified needs

7.1 Planning for product realization

The planning for product realization for each section is specified in the respective manuals.

7.2 Customer Related Process

7.2.1 & 7.2.3 Determination & Review of requirements related to the product
The process of determining & reviewing the requirements of the customer and any related salutatory requirements for each section are documented in the section manuals.

7.2.3 Customer Communication
The students of the institute are given a copy of ordinances and regulations of the program that they have joined. The Library and Computer Centre have contract in the form of declaration and undertaking that the student is given and has to fulfil. The customers to ICSR, namely industry receive institute communications through the Dean (ICSR). Announcements for various technology appreciation programmes, progress review on sponsored projects, funds utilization etc are sent to ICSR customers. Additional modes of communication for a section are specified in the section manual.

7.3 Design and development
The Design and Development activities in this manual are confined only to the User-Oriented Programs. Detailed description is given in the procedure manual of User-Oriented Programs.

7.4 Purchasing
Purchasing activity within the scope of this manual is broadly classified as:

- Items relating to Educational Service provided for Students are: educational equipment such as over head or slide projector, stationary items, class room furniture etc. All such purchases are executed through the Stores and Purchase section of the institute. This procurement process of this section is documented and ISO-9001:2000 certified under QSM-2

- All books and journals are purchased by the library and the details of the process are documented in the library procedure manual.

- In case of items for Research and Consultancy, concerned investigator shall undertake purchases of necessary equipment, stationary, books, research articles etc. for the successful completion of the project. This is done through IC&SR – Project purchase which is documented in the IC&SR manual.

7.5 Production and Service Provision

7.5.1 Control of Production and Service Provision

Of the six sections, the Academic Section and User-Oriented programs & workshop focus on producing students and associated services to students & other customers. The library, Computer-Centre and IC&SR, focus on service to it users

The manuals of each of the six sections specify the procedures followed for control of production and services provision relevant to the section.

7.5.2 Validation of the Process for Production and Service Provision

The validation of the academic process is periodically made by the various review committees such as the Board of Academic Courses, Board of Academic Research and the Senate. In addition, the monthly HoDs meetings serve an additional forum to monitor and control the activities. Other sections such as Library have internal meetings and the Library Advisory Committee to which activities are presented and validated. Central Workshop, Computer Centre and ICSR have internal section meetings and

advisory committees that validate both the quality management system as well as the operational aspects.

7.5.3 Identification And Traceability

Based on the product & service provided by each section, appropriate procedures for identification and tractability are followed by each section. These are documented in the respective section manuals.

7.5.4 Customer Property

Customer supplied product vary based on section. In case of research and consultancy, the customer-supplied product could be in the form of equipment to be tested or specialised chemicals or materials that are supplied by the customer (industry) for the purpose of work to be carried out at IIT-M.

In case of the Central Workshop the material supplied by the job indentor is treated as the CSP. For the Computer Centre, the user files are considered as customer property. Each section manual specifies respective customer property if applicable and procedures used to handle such property.

7.5.5 Preservation of the Product

This clause is directly applicable to the following sections- Central Workshop, Central Library and the Computer Centre and is covered in their respective Manuals.

7.6 Control of monitoring and measuring devices
Procedure pertaining to Inspection, Measuring and Test Equipment is applicable to the Central Workshop and procedure to carry out this activity is covered in the Manual of the Central Workshop. This is also applicable to the computer

centre and has been addressed in the section procedure manual.

8. Measurement Analysis and Improvement

8.1 General

Measurement monitoring analysis and improvement of the various aspects of education provided by the institute is taken up in the various forums. The Academic Section also monitors the progress of the student and informs the parents of poor progress. The Senate, Board of Academic Courses, Board of Academic Research and hods meetings act as the various forums in which the monitoring takes place.

8.2 Monitoring and Measurement

8.2.1 Customer Satisfaction
1   Each section will conduct customer satisfaction surveys twice a year Infrastructure support services towards academic programme: Routine management of academic programme predominantly rests with individual Department. The customer complaint is addressed thus at the Department / Section / Lab level.

2   Complaints pertaining to the processes and procedures related to academic, administrative as well as IC&SR activities: For example, some of these could be delays in issue of grade cards, difficulties in project staff recruitment or purchase procedures, settlement of bills, timely release of student scholarships etc. These complaints shall be received, both in a formal as well as in an informal fashion in oral and written form as feedback. These shall be redressed by the individual as well as the head of the section concerned or with the intervention / advice of the immediate supervisor, if required. This clause is particularly applicable to the Central Library and the Computer

Centre. The detail procedure to redress customer complaints are listed in the Systems and Procedure Manuals for the Central Library and the Computer Centre.

8.2.2 Internal Audits

The system followed for Internal Quality Audit at IIT-M is outlined in this section.

Internal quality audits shall be carried out at least two times in a year. The Internal Quality Audit schedules and auditors shall be issued by the Management Representative and Quality Manager in consultation with section heads and authorised by the Dean Administration.

These audits shall verify the following:

a) The adequacy of the system.
b) The extent of compliance at different sections and departments.

The Management Representative is responsible for the monitoring, verification and closure of NCs. The Management Representative of IIT-M along with the Director and other senior administrators of the Institute shall verify the Internal Quality Audit Reports (IQAR) in the Management Review meetings. The QMS process controlled by the management representative shall also be audited after each Management Review Meeting.

8.2.3 and 8.2.4 Monitoring and measurement of the process and product

This is addressed in the procedure manuals of the various sections. Process

and Product Parameters to be met are defined by each section. Based on the analysis, data regarding non conforming products are collected by the various sections. The Quality Objectives and measurable parameters are monitored and by the respective section heads. This information is presented in the Management Review Meeting. These information help in understanding the performance of the Quality Management Systems.

8.3 Control of Non-Conforming Products

A) The non-conforming products at the QMS level are in the form of non-conformance to documented procedures. When found these are documented, reported at the management review and corrective actions taken. Control of Non-conformances in each of the sections is addressed in the section manuals.

8.4 Analysis of Data

There are a variety of data This section deals with the statistical techniques used at IIT-M as and when required.

Identification of Need: In the educational service, such techniques are needed for determination of
1   Student performance (grades and cumulative grade point averages)
2   For the course and teacher evaluation
3   For budget preparation and future projections at the Institute and section level.

Procedures: The relevant statistical techniques are used for evaluating for student performance, course and teacher evaluation and for budget preparation.

These data are presented by the Management Representative in the Management Reviews and by the HoDs in the monthly HoDs meetings.

IIT-M maintains ordinance, rule and procedure books for the purpose of academic matters. Such books are made available to all the students. Any departure from the stated rules and procedures, as well as students complaints with regard to them are to be recorded by concerned authorities of the Institute. Frequently recurring non-conformities shall be identified and dealt with accordingly. These could be, for example, for academic course sequencing or towards code of conduct in the hostels.

8.5 Improvement

8.5.1 Continual Improvement
The quality policy of IIT-M states its commitment to improve the services offered by the support processes. Continuous improvement is one of the objectives of the Quality system of IIT-M. The internal audit reports, data analysis, corrective actions help IIT-M in its continuous improvement initiatives. The data to be collected for measuring progress of process and for measuring continuous improvement as a means of assessing customer satisfaction are provided in the respective procedure manuals.

8.5.2 Corrective Action
Any non-conformances related to the overall quality management system are analysed at the management review meetings and decisions on corrective actions to avoid such non-conformances are taken and documented in a corrective actions file.

Each section within QMS-1 also has individual procedures for identifying and documenting corrective action with respect to the unit.

8.5.3 Preventive Action

Based on the customer feedback, suggestions generated during management meetings, appropriate changes shall be made with the intention of preventing non-conformities and improving the overall quality management system. The preventive actions taken will be documented in a preventive actions file.

Each section within QMS-1 also has individual procedures for identifying and documenting preventive action with respect to the unit.

Annexure A

IIT – Madras Stakeholder Classification and Related Support Services

	Academic Courses And Research	UOP,QIP, Short Term Courses.	Industrial Consultancy & Sponsored Research
Nature of the stakeholder	Student(internal)	Teachers & professionals (external)	Industry (external) Faculty &staff(internal)
Primary Goal	• HRD • Design ,Develop & Implement Programmes , Courses And Syllabi • Open Ended Academic Research	• Industry Need Oriented Formal Degree Programme • HRD • Technical Education And Leadership • Service to Industry and Other Technical Institutions • Income generation	• Creation, Acquisition and Maintenance of Facilities with the Help of Outside Funding Agencies. • Income Generation • Solution of Industry Problems including Testing ,RBIC, Design And Development • Applied, Basic Research for Funding Agencies.
Iit-M Support Services	• Admissions office • Library, Computer Centre, Workshop • Accounts: Tuition Fee, scholarship • Hostel: Maintenance, Security, Hygiene • Gymkhana: Curricular ,Co And Extracurricular Activities • Hospital :Medical Needs • Academic : Grade Cards & Records • Training and Placement • Alumni Association	• Academic: Grades And Research Progress Records • Centre for Continuing Education • Guest House, Hostel Or Similar Accommodation • Hospital : Medical Facilities • Finance &Accounts: Payments • Library, Computer Centre, Workshop	• Recruitment of Project Staff & Administrative Procedures • Project accounts • Creation of New Infrastructure (E&W) • Stores & Purchase :Project Related Purchases • Internal audit • Facilities: Library, Computer Medical, Accommodation.

Annexure B

IIT – Madras Research University (academic)

Sub contractors

High Schools, Colleges, & Other Universities, Industries

Admissions

Incoming inspection

In process inspection (years)

Faculty /Staff
Class rooms/ Laboratories / Workshop/ Computer Centre/ Library

Final inspection

Graduation

Customers

Alumni

Industry Society R&D

Administration
Departments / academic section

PhD
M.S.
M.Tech.
M.Sc.
B.Tech.
Programs

Basic sciences
- Engineering sciences
- Engineering design
- Humanities and social science

Employability
- Solution to Engineering Problems
- Upgrading Existing Knowledge
- Management, Computer Skills

Fundamentals

Market Driven

IIT Council
MHRD
BOG
Senate

Annexure C

IIT- Madras: Research University (Research and Consultancy)

Problem Solving: Fundamental & Applied Research

Short Term Solution: Industry Driven Consultancy

- Resource Generation
- Patents
- Initiating New Projects
- Infrastructure Development

- Project staff recruitment
- Equipment Procurement
- Detail Investigations
- In-process Assessment
- Project Closing

Ph.d., M.S., M.Tech., M.Sc. Research publications

Faculty & Staff
Knowledge Generation & skills application

Funding Agencies for Research & Consultancy

Existing Infrastructures and Facilities
Library /Laboratories/ Workshop

Centre For Industrial Consultancy And Sponsored Research

Annexure D

Organizational chart showing:

Chairman BoG → Director → Deputy Director → Registrar

Dean (ICSR) → CTEO → STEO

Dean (Planning), Dean (Administration) → Chairman, E & WC; Advisor Alumni Affairs; CMO; D.R. (S&P); SE; CSO

Registrar → D.R. (F&A), D.R. (Admn)

Heads of Depts. → Faculty

Dean (Academic Research) → Heads of Centers → Librarian → Deputy librarian

Dean (Academic Courses) → Chairman, JEE, GATE, CCE.; Advisors Non-Curricular Activities; D.R. (Acad); D.R. (T&P)

Dean (Students) → Chairman, Hostel Mgmt.; Wardens

Supplementary Note to Annexure D

Departments:
Aerospace Engineering ,Applied Mechanics , Chemical Engineering , Civil Engineering, Computer Science And Engineering , Electrical Engineering , Humanities and Social Sciences, Mathematics, Mechanical Engineering , Metallurgical Engineering , Ocean Engineering , Ocean Engineering , Physics..

Centers:
Centre For Continuing Education, Centre For Systems And Devices, Composite Technology Centre, Material Science Research Centre, Regional Sophisticated Instrumentation Centre, Biotechnology Research Centre.

Central facilities:
Central Electronic Centre, Centre Photographic Centre, Central Workshop, Central Library , Computer Centre, Hospital ,Security Section , Air Conditioning Unit, Central Glass Blowing , Central Photographic Section , Central Gas Supply Unit.

Deputy Registrars (DR):
Academic, Finance and Accounts, Stores and Purchase, Training and Placement

Asst. Registrars(AR):
Academic, Finance and Accounts, IC&SR, Stores and Purchase, Hostel Management.

CETO: Chief Techno Economic Office In IC&SR.

M.R: Management Representative.

Annexure F

General Structure of Academic Departments:

HOD

Academic Faculty

Professors, Associate & Assistant Professors , Visiting Faculty.

- Academic Course, Lab Work.
- Research Guidance.
- Member BAR ,BAC ,SENATE, LAC, IC&SR, DC, DCC, GTC, JEE, GATE, Timetable
- Internal /External Examiner.
- Sponsored Research and Consultancy Activities.
- Short Term Courses.
- Professional Activities, Corporate Activities (Warden, Advisors Etc.,)
- Library Head.

Technical Staff

Supervisor / Technical Officer, Lab-In-charge, Mechanics, Technicians, Helpers.

- Fabrication for Academic Project And Research Work For Students.
- Fabrication and Assistance in IC&SR Activities of the Faculty.
- Maintenance of Workshop equipment.
- Maintenance & Assistance In Laboratories

Administration staff

Office Supt., UDC, LDC, / Steno / Helpers.

- Maintenance Of Student Files And Records.
- Consolidation of Academic Records for Onward Transmission.
- Correspondence & Communication.
- Maintenance and Circulation Of Academic & Administrative Circulars And Notices.
- Maintenance of Office Equipment, Classrooms, Seminar halls, library etc.,

Store keeper / assistant

- Purchase / Stores Procedures and Procurement.
- Maintenance of Budget and Accounts.