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Electrical and Electronics Engineering



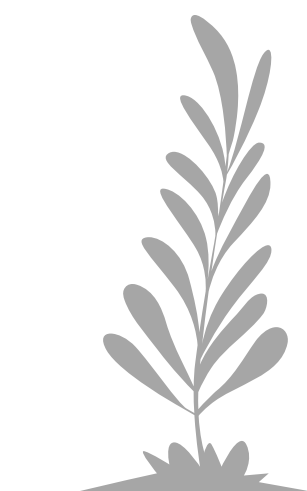
IV YEAR/7th Semester

GE8077-Total Quality Management

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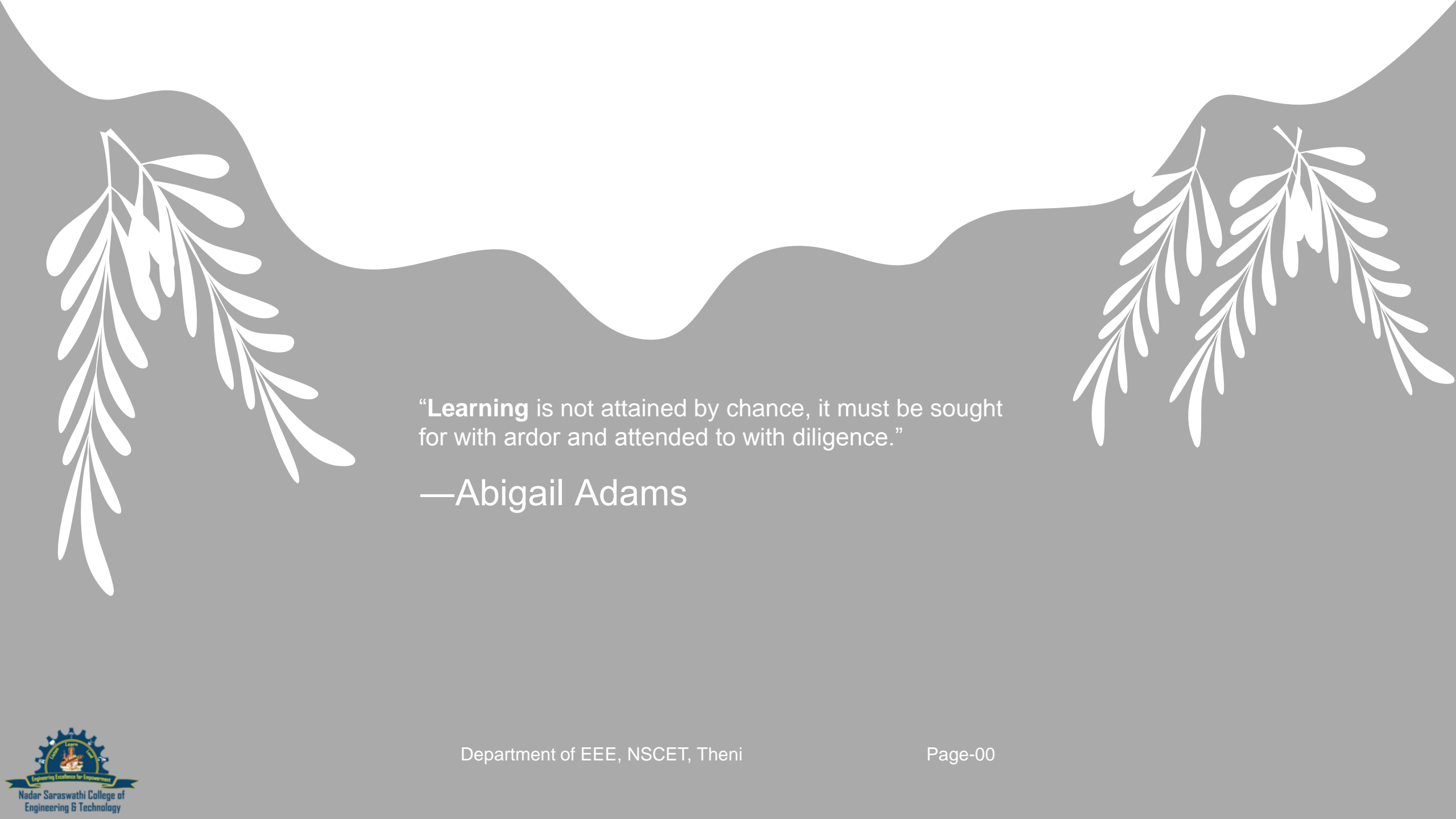
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UNIT-V QUALITY MANAGEMENT SYSTEM





“**Learning** is not attained by chance, it must be sought for with ardor and attended to with diligence.”

—Abigail Adams

Unit V - Syllabus

QUALITY MANAGEMENT SYSTEM

Introduction—Benefits of ISO Registration—ISO 9000 Series of Standards—Sector-Specific Standards—AS 9100, TS16949 and TL 9000-- ISO 9001 Requirements—Implementation—Documentation—Internal Audits — Registration

ENVIRONMENTAL MANAGEMENT SYSTEM:

Introduction—ISO 14000 Series Standards—Concepts of ISO 14001—Requirements of ISO 14001—Benefits of EMS.

QUALITY MANAGEMENT SYSTEM

INTRODUCTION

- The quality management system is intended to improve productivity and enhance customer satisfaction. The quality management system promotes companies to evaluate hidden needs of consumers, identify the processes that develop quality products which are according the expectations of shopper, and control business process. Quality management is the basis for business achievement of any firm.

ISO- International Organization for Standardization

- The ISO 9000 standards define minimum requirements for business quality assurance systems. These are "consensus standards" promulgated by the International Standards Organization in Europe and the American National Standards Institute (ANSI) in the United States.
- The ANSI standards are officially titled the "Q90" series. They are identical to the ISO 9000 series and people use the names interchangeably.
- Conformance is voluntary. However, many European firms use them as a requirement for suppliers. Within the United States, some firms also use the standards for supplier certification.

BENEFITS OF ISO

- Achievement of international standard of quality.
 - ✓ Value for money.
 - ✓ Customer satisfaction.
- Higher productivity.
- Increased profitability
- Improved corporate image
- Access to global market
- Growth of the organization
- Higher morale of employees



Benefits of ISO Registration



The ISO 9000 Series of Standards

- The ISO 9000:2000 series consists of four separate, but closely related standards:
- ISO 9000:2000 Quality Management – Fundamentals and Vocabulary
- This describes the fundamentals of quality management systems, and specifies the terminology for quality management systems used throughout the series. An Annex to the standard illustrates concept relationships relating to quality, management, documentation, audit etc.

Cont.,

ISO 9001

Design, Development, Production, Installation & Servicing

ISO 9002

Production, Installation & Servicing

ISO 9003

Inspection & Testing

ISO 9004

Provides guidelines on the technical, administrative and human factors affecting the product

or services.

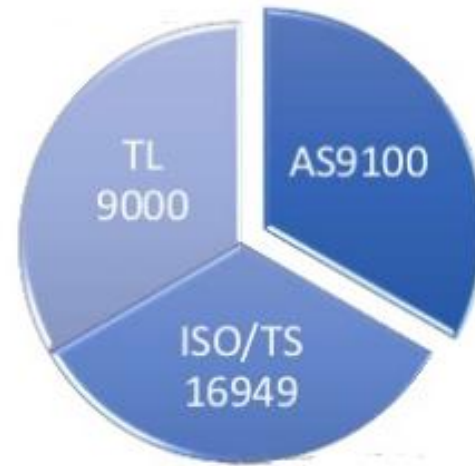
CLAUSES (ELEMENTS) OF ISO 9000

Management Responsibility

- Adequate resources for the verification activities
- Need for trained personnel
- Work and verification activities including audits
- A Management Representative to be identified
- Review the Quality System performance and customer complaints periodically

SECTOR SPECIFIC STANDARDS

- Sector specific Standards ISO 9000 systems are simple and that can be used in any industry But some other systems are developed only specific sectors to particular industry Such as automotive or aerospace.



TL9000

- **TL9000** - Quality Excellence for Suppliers of Telecommunication Forum (QuEST).
- It is based on ISO 9001 that specific set of requirement that define the design development ,production ,maintenance, and installation of telecommunication products and services.



Benefits

- Continues improvement
- Enhanced relationship
- Efficient management of external audit
- Worldwide standards , competitiveness

AS9100

AS9100 This aerospace industry quality system was officially released by the Society of Automotive Engineers in May 1997.

Its development and release represents the first attempt to unify the requirements of NASA, DOD, and FAA, while satisfying the aerospace industry's business needs.

In March 2001, the International Aerospace Quality Group (IAQG) aligned AS9100 with ISO 9001:2000. Industry-specific interpretations and methodologies are identified in italics and bold type. These additions are accepted aerospace approaches to quality practices and general requirements.

ISO/TS 16949

- This standard is entitled Quality Systems Automotive Suppliers-Particular Requirements for the Application of ISO 9001. It harmonizes the supplier quality requirements of the U.S. big three as provided in QS 9000
- The standard has been approved by Asian automakers.
- The goal of this technical specification is the development of fundamental quality systems that provide for continuous improvement, emphasizing defect prevention, and the reduction of variation and waste in the supply chain.
- There are three basic levels: (1) ISO 9001, (2) sector-specific requirements, and (3) company-specific requirements.

ISO 9001 REQUIREMENTS

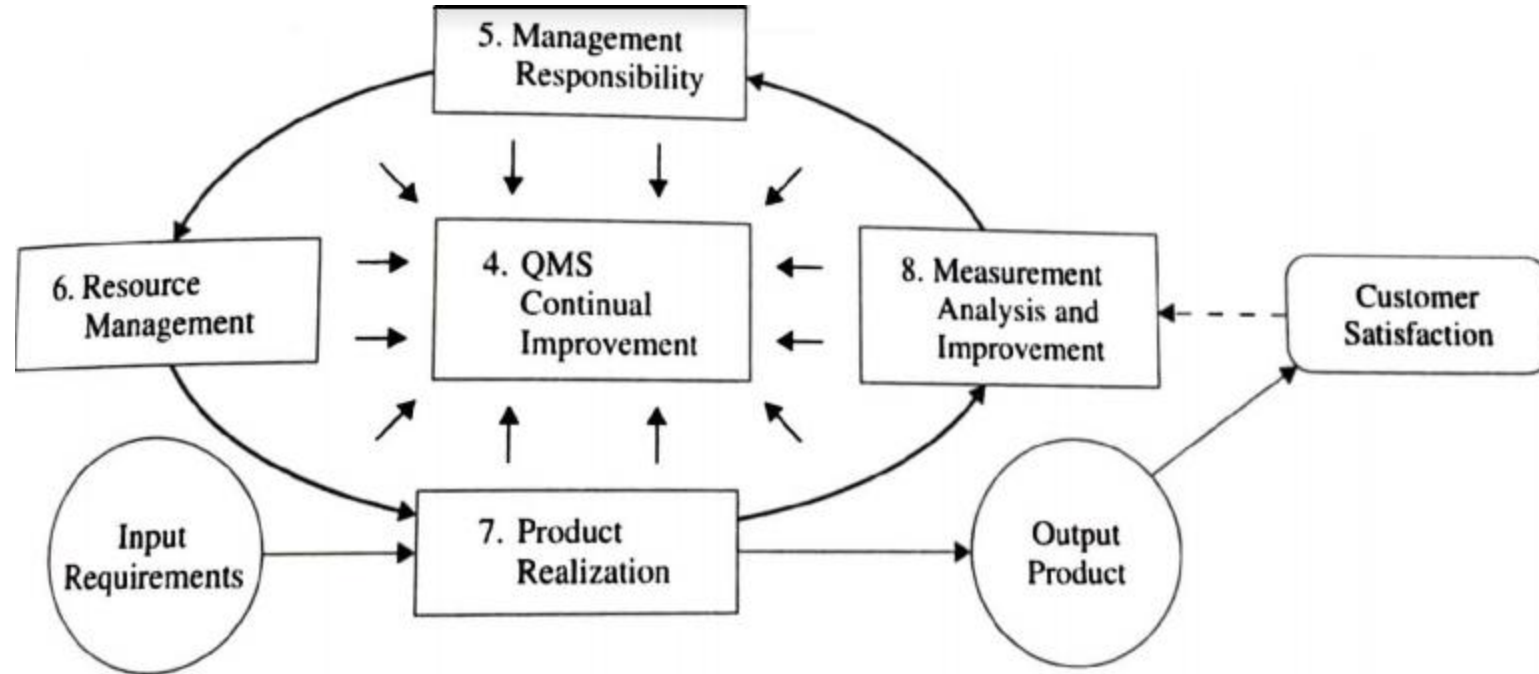
- The standard has eight clauses: Scope, Normative References, Definitions. Quality Management Systems, Management Responsibility. Resource Management, Product and/or Service Realization, and Measurement, Analysis, and improvements.
- The first three clauses are for information while the last five are requirements hut an organization must meet.
- The numbering system used in the standard is followed in this section.

ISO 9001 Requirements

- The application of a system of processes within an organization, together with their identification and inter actions and the managing of these processes, is referred to as the process approach.
- This approach emphasizes the importance of:
 - Understanding and fulfilling the requirements.
 - The need to consider processes in terms of value added.
 - Obtaining results of process performance and effectiveness.
 - Continual improvement of processes based on objective measure.

Scope

- The Purpose of the standard is for the organization to demonstrate its ability to provide a product that meets customer and regulatory requirements and to enhance customer satisfaction.



Model of a Process-Based Quality Management System

IMPLEMENTATION

There are a number of steps that are necessary to implement a quality management system.

1. Top Management Commitment
2. Appoint the Management Representative
3. Awareness
4. Appoint the Implementation Team
5. Training
6. Time Schedule
7. Select Element Owners

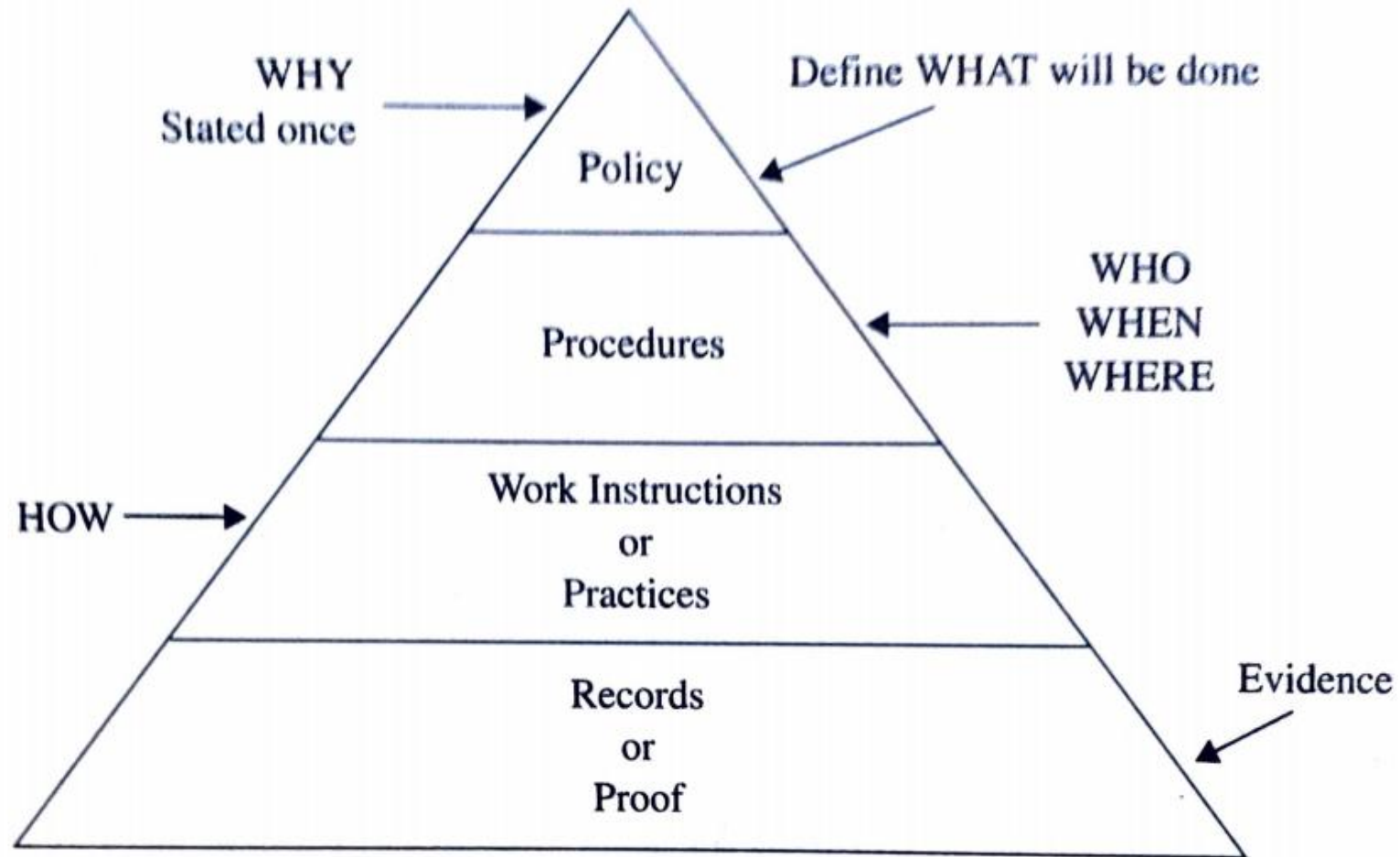
Implementation Steps

8. Review the Present System
9. Write the Documents
10. Install the New System
11. Internal Audit
12. Management Review
13. Preassessment
14. Registration

DOCUMENTATION

- A Quality System is the method used to ensure that the quality level of a product or service is maintained .
- The System Documentation can be viewed as a hierarchy containing four tiers.
- All Documentation moves from one level to the next in a descending order.
- If the system is properly structured, changes at one level will seldom affect the levels above it, but may affect those below.

The Documentation Pyramid



INTERNAL AUDITS

- After the policies, procedures, and work instructions have been developed and implemented, checks must be made to ensure that the system is being followed and the expected results are being obtained.
- This activity is accomplished through the internal audit, which is one of the key elements of the ISO 9000 standard.
- All elements should be audited at least once per year and some more frequently, depending on need.

Objectives

- There are five objectives of the internal audit. They are to:
- Determine that actual performance conforms to the documented QMS.
- Initiate corrective action activities in response to deficiencies.
- Follow up on noncompliance items from previous audits.
- Provide continued improvement in the system through feedback to management.
- Cause the auditee to think about the process, thereby encouraging possible improvements.

Auditor

Audits should be performed by qualified individuals who have received training in auditing principles and procedures.

The auditor should be objective, honest, and impartial. Of course, the auditor should be prepared by being knowledgeable about the standards.

Techniques

- During the actual audit, there are a number of techniques that the auditor should employ.
- The objective is to collect evidence, and there are three methods:
 - examination of documents,
 - observation of activities, and
 - interviews.

REGISTRATION

Quality system registration is the assessment and audit of a quality system by a third party, known as a registrar. There are two parts: selecting a registrar and the registration process.

- Selecting a Register
- Registration Process

Selecting a Register

- Registrar selection can be based on the following criteria.
 1. Qualifications and Experience
 2. Certificate Recognition
 3. The Registration Process
 4. Time and Cost Constraints
 5. Auditor Qualifications

Registration Process

The registration process has six steps:

1.Application for registration

2.Document review

3.Preassessment

4.Assessment

5.Registration

6.Follow-up surveillance

ENVIRONMENTAL MANAGEMENT SYSTEM:

INTRODUCTION

An Environmental Management system is a management Structure that allows an organization to assess and control the environmental impact of its activities, products or services

ISO 14000 STANDARDS

ISO 14000 standard gives the company a background on which to base its Environmental Management System (EMS). This system can be joined with other quality standards and can be implemented together to achieve the organizations environmental targets. The overall aim of the system is to provide protection to environment and to prevent pollution.

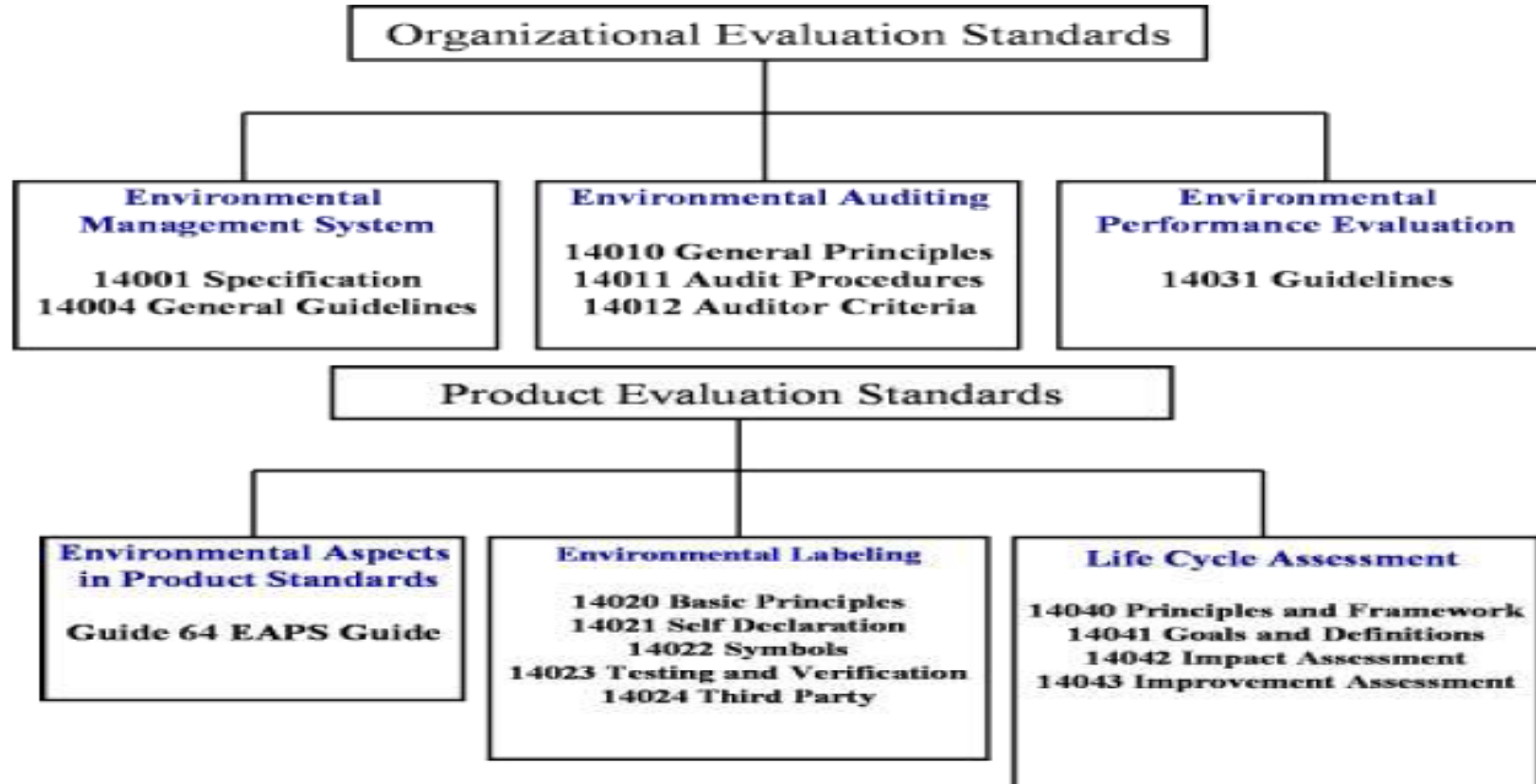
ISO 14000 Series of Standards

- EMS has two Evaluation Standards. They are

1. Organization Evaluation Standards

2. Product Evaluation Standards.

ISO 14000



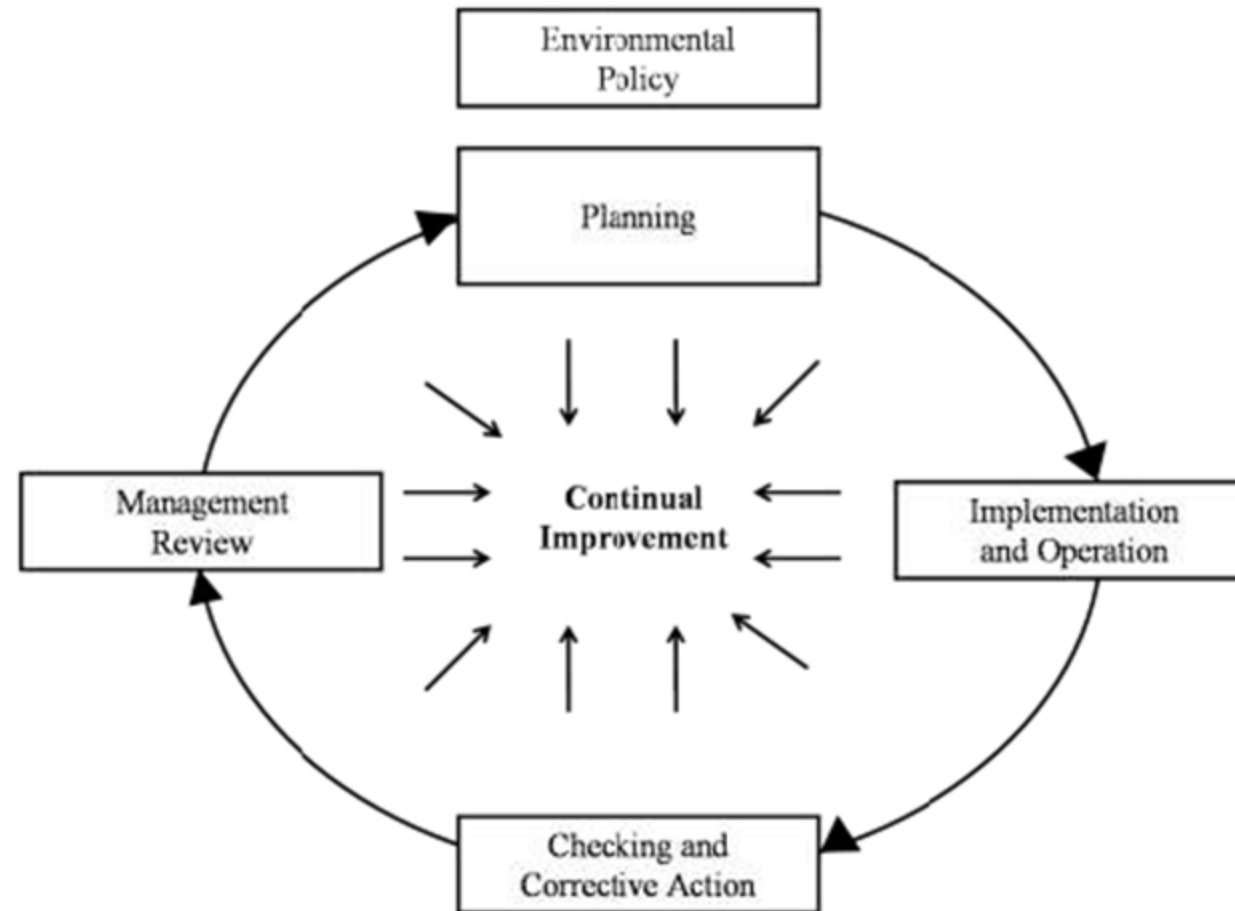
Concepts of ISO 14001

- This standard provides organizations with the elements for an environmental management system (EMS), which can be integrated into other management systems to help achieve environmental and economic goals.
- It describes the requirements for registration and/or self-declaration of the organization's EMS.
- Demonstration of successful implementation of the system can be used to assure other parties that an appropriate EMS is in place.

Concepts of ISO 14001

- It was written to be applicable to all types and sizes of organizations and to accommodate diverse geographical, cultural, and social conditions.
- As previously mentioned, the requirements are based on the process and not on the product.
- It does, however, require commitment to the organization's EMS policy, applicable regulations, and continual improvement.

Environmental Management System Model



- There are four sections to the standard-scope, normative references, definitions, and EMS requirements and an informative annex.

REQUIREMENT OF ISO 14001

There are six elements

1. GENERAL REQUIREMENTS

EMS should include policy, planning implementation & operation, checking & corrective action, management review.

2. ENVIRONMENTAL POLICY (Should be based on mission)

1. The policy must be relevant to the organization's nature.
2. Management's Commitment (for continual improvement & preventing pollution).
3. Should be a framework (for Environmental objectives & Targets).
4. Must be Documented, Implemented, & Maintained.

3. PLANNING

1. Environmental Aspects
2. Legal & other Requirements
3. Objectives & Targets
4. Environmental Management Programs

4. IMPLEMENTATION & OPERATION

1. Structure & Responsibility
2. Training, Awareness & Competency
3. Communication
4. EMS Documentation

- **5. CHECKING & CORRECTIVE ACTION**

- 1. Monitoring & Measuring
- 2. Nonconformance & Corrective & Preventive action
- 3. Records
- 4. EMS Audit

- **6. MANAGEMENT REVIEW**

- 1. Review of objectives & targets
- 2. Review of Environmental performance against legal & other requirement
- 3. Effectiveness of EMS elements

- 4. Evaluation of the continuation of the policy

BENEFITS OF ENVIRONMENTAL MANAGEMENT SYSTEM

GLOBAL BENEFITS

- Facilitate trade & remove trade barrier
- Improve environmental performance of planet earth
- Build consensus that there is a need for environmental management and a common terminology for EMS

ORGANIZATIONAL BENEFITS

- Assuring customers of a commitment to environmental management
- Meeting customer requirement
- Improve public relation
- Increase investor satisfaction
- Market share increase
- Conserving input material & energy
- Better industry/government relation
- Low cost insurance, easy attainment of permits & authorization