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COIMBATORE, 641 035, TAMIL NADU



DEPARTMENT OF AEROSPACE ENGINEERING

19MEE304 Total Quality Management

Topic: ISO 20000, ISO 22000, and IATF 16949:2016 – Overview and Applications

1. Introduction to ISO Standards

ISO (International Organization for Standardization) develops globally recognized standards to ensure **quality, safety, efficiency, and compliance** across industries.

- **ISO 20000** → IT Service Management Standard
- **ISO 22000** → Food Safety Management Standard
- **IATF 16949:2016** → Automotive Quality Management Standard

These standards **enhance customer satisfaction, reduce risks, and improve operational efficiency** in their respective industries.

ISO 20000 – IT Service Management System (ITSM)

2. What is ISO 20000?

ISO 20000 is an international standard for **IT Service Management (ITSM)** that aligns with **ITIL (Information Technology Infrastructure Library)**.

Objective:

- ✓ Ensure efficient **IT service delivery**.
- ✓ Improve **customer satisfaction** in IT services.
- ✓ Align IT services with **business goals**.

3. Key Elements of ISO 20000

- ◆ **Service Management System (SMS)** – Framework for IT service planning, design, and control.
- ◆ **Service Delivery Processes** – Incident management, problem resolution, capacity planning.

- ◆ **Change & Release Management** – Controls changes in IT infrastructure.
- ◆ **Availability & Security Management** – Ensures IT services are available and secure.
- ◆ **Supplier & Customer Relationship Management** – Enhances IT service collaboration.

✚ **Example:** An IT company providing **cloud services** follows ISO 20000 to ensure **uptime and security compliance**.

4. Benefits of ISO 20000

- ✓ Enhances IT service efficiency and reliability.
- ✓ Reduces downtime and improves customer trust.
- ✓ Ensures compliance with IT governance regulations.

ISO 22000 – Food Safety Management System (FSMS)

5. What is ISO 22000?

ISO 22000 is a **Food Safety Management System (FSMS)** that ensures safe food production and supply across the food industry.

✚ **Objective:**

- ✓ Prevent **food contamination and safety hazards**.
- ✓ Ensure **traceability in food production**.
- ✓ Maintain **hygiene and quality** in food supply chains.

6. Key Elements of ISO 22000

- ◆ **Hazard Analysis and Critical Control Points (HACCP)** – Identifies and controls food safety hazards.
- ◆ **Good Manufacturing Practices (GMP)** – Ensures hygiene and process control.
- ◆ **Traceability & Recall Procedures** – Enables tracking of food products for safety compliance.
- ◆ **Internal & External Audits** – Regular evaluations of food safety measures.

✚ **Example:** A dairy company follows **ISO 22000** to ensure milk products are **free from contamination**.

7. Benefits of ISO 22000

- ✓ Prevents **foodborne illnesses and safety risks**.
- ✓ Increases **consumer trust** in food brands.
- ✓ Ensures **legal compliance with food safety laws**.

IATF 16949:2016 – Automotive Quality Management System

8. What is IATF 16949:2016?

IATF 16949:2016 is a **quality management standard for the automotive industry**, developed by the **International Automotive Task Force (IATF)**.

✦ Objective:

- ✓ Ensure **zero defects** in automotive manufacturing.
- ✓ Reduce **waste and process variations**.
- ✓ Improve **product safety and performance**.

9. Key Elements of IATF 16949

- ◆ **Defect Prevention & Risk Management** – Focus on eliminating defects in manufacturing.
- ◆ **Advanced Product Quality Planning (APQP)** – Standardized framework for automotive product development.
- ◆ **Failure Mode and Effects Analysis (FMEA)** – Identifies and reduces potential failures.
- ◆ **Statistical Process Control (SPC)** – Uses data analysis for consistent quality.
- ◆ **Customer-Specific Requirements (CSR)** – Custom quality demands from OEMs (Original Equipment Manufacturers).

✦ **Example:** **Toyota** follows IATF 16949:2016 to maintain **high quality standards** in car manufacturing.

10. Benefits of IATF 16949

- ✓ Reduces defects and production errors.
- ✓ Enhances **supplier quality** in the automotive sector.
- ✓ Improves overall **vehicle reliability and performance**.

11. Comparison of ISO 20000, ISO 22000, and IATF 16949

Standard	Industry	Purpose	Key Focus
ISO 20000	IT Services	IT Service Management	Service delivery, availability, and security
ISO 22000	Food Industry	Food Safety Management	HACCP, GMP, and traceability
IATF 16949	Automotive	Automotive Quality Management	Defect prevention, APQP, and FMEA

12. Case Studies on ISO Standards Implementation

✦ Case Study 1: IBM (ISO 20000 Implementation)

Challenge: IT service disruptions affected business operations.

Solution: Adopted **ISO 20000** to streamline IT processes.

Result: **50% reduction** in service downtime.

✦ Case Study 2: Nestlé (ISO 22000 Implementation)

Challenge: Food safety risks in global supply chains.

Solution: Implemented **ISO 22000** for hazard prevention.

Result: Improved **food safety compliance** in 90+ countries.

✦ Case Study 3: Ford Motors (IATF 16949 Implementation)

Challenge: High defect rates in automotive components.

Solution: Used **IATF 16949** to improve supplier quality.

Result: **30% improvement** in defect-free deliveries.

13. Conclusion

- ✦ **ISO 20000 enhances IT service management efficiency.**
- ✦ **ISO 22000 ensures food safety and quality compliance.**
- ✦ **IATF 16949 improves defect prevention in automotive manufacturing.**
- ✦ **Adopting these standards leads to improved business performance and customer satisfaction.**