Procurement and Quality Management
UNIT 3

1. Procurement

Procurement is the process of acquiring goods, services, or works from external sources. It involves planning, selecting vendors, establishing terms, managing contracts, and ensuring timely delivery.

Vendor Selection Methods

- Open Tendering – Competitive bidding where all suppliers can submit bids.
- Selective Tendering – Only pre-qualified vendors are invited to bid.
- Negotiated Procurement – Direct negotiation with suppliers for complex projects.
- Single Sourcing – Reliance on a single vendor for quality or cost benefits.
- Multiple Sourcing – Using several suppliers to reduce risk.
- Reverse Auctions – Online bidding where vendors reduce prices in real time.
- E-Procurement – Digital procurement systems for efficiency and transparency.

2. Just-in-Time (JIT)

Definition: An inventory management approach where materials are purchased and produced only as needed.

Objectives:

- Reduce inventory costs
- Minimise waste
- Improve efficiency

Benefits:

- Lower holding costs
- Increased quality focus
- Smooth production flow

Challenges:

• Requires reliable suppliers

• Sensitive to disruptions

3. Supply Chains

Definition: The network of organisations, people, activities, and resources involved in delivering a product/service from supplier to customer.

Components:

• Upstream – Raw material suppliers

• Midstream – Manufacturing and processing

• Downstream – Distribution and retail

Goals: Efficiency, responsiveness, cost-effectiveness, customer satisfaction.

4. Quality Management

Quality

The degree to which a product/service meets customer expectations.

Quality Circles

Definition: Small groups of employees who voluntarily meet to discuss and solve work-related quality problems.

Quality Control (QC)

The reactive process focused on detecting defects in finished products.

Quality Assurance (QA)

Proactive process ensuring that quality standards are followed throughout production to prevent defects.

5. Cause and Effect Analysis

Also called the Ishikawa or Fishbone diagram. Helps identify root causes of a problem.

6. ISO Standards

International standards to ensure quality, safety, and efficiency. Examples include ISO 9001 (Quality Management), ISO 14001 (Environmental), and ISO 45001 (Health & Safety).

7. Total Quality Management (TQM)

An organisational approach focused on continuous improvement of processes, products, and services by involving all employees.

8. Six Sigma

A data-driven methodology aimed at eliminating defects and variations. Uses DMAIC (Define, Measure, Analyse, Improve, Control) and DMADV (Define, Measure, Analyse, Design, Verify).

9. Resource Planning and Allocation

The process of identifying, assigning, and managing resources (human, financial, physical, and technological) for projects or operations.

10. Availability and Constraints of Resources

Availability factors: Budget, manpower, raw materials, technology.
Constraints: Limited resources, regulations, supplier delays, seasonal shortages.

11. Resource Levelling and Crashing

Resource Leveling

Technique to balance resource demand by adjusting project schedules.

Crashing

Technique to shorten project duration by adding resources or overtime.