



# PD06

## Movement of Goods

### Standards

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**Published by:** The Chartered Institute of Logistics and Transport in the UK  
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# Movement of Goods

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## Unit purpose and aim

This option unit provides the underlying knowledge for the movement of goods in a national and international context. It addresses the responses of the transport operator to the characteristics of goods and places the latter's movements in the context of the total logistics concept. Choice of mode, vehicle and route are integral and the external and internal issues relating to modal infrastructures are featured. A further key element is the location of infrastructure, and the operation of interchanges together with their supporting information links.

## Elements

- PD06-1 The Goods to be Moved
- PD06-2 Origins, Destinations and Routes
- PD06-3 Modes of Transport
- PD06-4 Movements
- PD06-5 Logistics and the Supply Chain

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# Element PD06-1

## The Goods to be Moved

### Learning Outcomes

The learner will:

- 1.1. Know how the characteristics of goods impact on their handling.
- 1.2. Understand the safety and security requirements of goods to be moved.
- 1.3. Know the advantages and disadvantages of the various unitisation methods.
- 1.4. Understand the factors that influence the flow variation of goods to be moved.

### Assessment Criteria

The learner can:

- 1.1.1. Select suitable handling methods for different types of goods.
- 1.2.1. Ensure the safe and secure transportation of goods to their destination.
- 1.3.1. Select the most appropriate method of unitisation for different types of consignment.
- 1.4.1. Plan loads to match variable patterns of demand and supply.

## Indicative Content

Characteristics of goods	Type: hazardous; temperature-sensitive; physically perishable; economically perishable; controlled waste; sterile; livestock. Physical features: weight; dimensions; AILs. Constraints: transit regulations; legislative controls. Handling: methods; equipment; training.
Safety and security of goods	Safe loading principles, Hazardous goods: classifications; compatibility groups; ADR; IMDG code; dangerous air cargo. Security: theft, loss.
Unitisation methods	Types: palletisation; ISO containers; other freight containers; stillages; demountable bodies. Advantages; disadvantages.
Flows of goods requiring movement	Seasonality: supply & demand; world trade; "spot" price commodities. Planning to match supply/demand.

# Element PD06-2

## Origins, Destinations and Routes

### Learning Outcomes

The learner will:

2.1. Know the variety of sources and destinations of goods.

2.2. Understand the impact of the collection and delivery site characteristics and constraints.

2.3. Understand the various third parties involved in the movement and control of goods, together with their roles and responsibilities.

2.4. Understand the basic concepts of route planning and scheduling.

2.5. Understand the advantages and disadvantages of IT based systems for route planning and scheduling.

### Assessment Criteria

The learner can:

2.1.1. Analyse the different sources and destinations of goods to ensure the appropriate use of resources.

2.2.1. Plan to minimise the difficulties of using a particular collection or delivery site.

2.3.1. Work with enforcement agencies to ensure compliance with legal requirements.

2.3.2. Plan and schedule freight transits using appropriate third party providers.

2.4.1. Manually plan and schedule freight transits for single and part loads.

2.5.1. Plan and schedule freight transits using appropriate software.

## Indicative Content

Sources and destinations	World commodity flows. Sources: manufacturers; natural; import; customers. Destinations: retail; international processing; onward movement; end-users.
Collection and delivery site characteristics and constraints	Access; loading/unloading facilities; availability of MHE; delivery window.
Third parties	Police; Customs and Excise; immigration authorities; port authorities; other terminal authorities; freight forwarders; agents; 3PL/4PL providers; transport companies.
Route planning and scheduling	Routeing factors: viable route; permit requirements; staging points; weather; congestion; timing. Scheduling factors: paths and slots; delivery windows; crew hours; timed restrictions on movement; border crossing; congestion; contractual issues. Routeing: arc; radial; regional; stem. Planning and scheduling: single consignment; part-loads; multidrop; backload optimisation. IT-based solutions; online multi-modal routing



# Element PD06-3

## Modes of Transport

### Learning Outcomes

The learner will:

3.1. Know the characteristics of the various modes of transport and their infrastructure requirements.

3.2. Understand the comparative features of vehicles in terms of the capacity, design, etc.

3.3. Understand the nature, management and resource requirements of the modal nodes.

### Assessment Criteria

The learner can:

3.1.1 Select an appropriate mode or combination of modes for any specific movement of goods.

3.1.2 Select an appropriate vehicle within the chosen mode.

3.2.1. Carry out a trade-off analysis to ensure the most appropriate vehicle is used.

3.3.1. Analyse the safety and security requirements of freight interchanges, depots and terminals.

## Indicative Content

Characteristics of various modes	Modes: road, rail, air; sea; IWT; pipeline. Characteristics: speed; range; cost; weight/volume of payload; flexibility. Infrastructure: the way; terminals; control.
Features of vehicles	Vehicles: trains; vessels; aircraft; lorries; local variations in less developed countries. Features: speed; range; operating cost; payload.
Modal nodes	Seaports; airports; container bases; inland freight terminals; road transport hubs. Ownership; infrastructure; operation.

# Element PD06-4

## Movements

### Learning Outcomes

The learner will:

4.1. Understand the various types of movement and their resource requirements.

4.2. Know the safety and security issues involved in undertaking movements.

4.3. Understand the process, controls and constraints of planning movements in the national and international contexts.

4.4. Know why information exchange is important and how it can be achieved successfully.

### Assessment Criteria

The learner can:

4.1.1 Prepare resource plans for the movement of goods.

4.2.1. Prepare a safety and security plan for a journey.

4.3.1. Plan national and international movements of goods.

4.4.1. Use information to ensure all parties are aware of delivery progress in real time.

## Indicative Content

Movements	Scheduled open-access; regular dedicated; “as required”; courier; spot traffic; special traffic.
Issues involved in undertaking movements	Safety: accidents; dangerous goods; safe loading. Security: vehicles; depots; loads.
Planning movements	Factors: distance; demand; destination; duration.
Information exchange	Asset visibility; prediction of delivery times; security.

# Element PD06-5

## Logistics and the Supply Chain

### Learning Outcomes

The learner will:

5.1. Understand the application of logistics principles and practices in relation to the movement of goods

5.2. Understand the components of the supply chain, the importance of the total logistics concept that integrate them and their relevance to the provision of transport.

5.3. Understand supply chain management techniques from the transport provider's perspective.

5.4. Know the importance of quality management and supply chain performance monitoring.

### Assessment Criteria

The learner can:

5.1.1 Apply logistics principles to the movement of goods.

5.2.1. Analyse the supply chain from a freight transport perspective.

5.3.1. Evaluate the impact of supply chain management techniques on freight transport providers.

5.4.1. Implement the collection and analysis of transport related performance data.

## Indicative Content

Logistics principles and practices	Principles: simplicity; co-operation; economy; flexibility; foresight. Purpose: right thing; right place; right time; right condition; right price. Rules: achievement of end-user requirements; optimisation of the total system. Practices: agility; lean performance; JIT.
Supply Chain	Definition: “sequence of events that result in raw materials being transformed into finished goods in the hands of the end-user”. Components: sourcing & procurement; stock holding; production; physical distribution; recycling. Transport as key element of supply chains. Application of logistics principles, purpose and rules. Transport operator’s own supply chain.
S-CM techniques	Activity based costing; distribution requirement planning; efficient customer response; JIT; lead times; reverse logistics.
Quality management and S-C performance monitoring	Performance specifications. Cause and effect; Pareto analysis; comparison with competitors. Supply Chain performance appraisal. Failure costing.