The Chartered Institute of Logistics and Transport

CILTHK
Professional Qualifying Examination
Module and Examination syllabi

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Content

The Chartered Institute of Logistics and Transport in Hong Kong

Professional Qualifying Examination

Introduction

The Professional Qualifying Examination (PQE) is designed for professionals and practitioners working in the field of transport and logistics. It is designed to broaden knowledge, skills and competence as part of professional and/or managerial development.

For admission as a Chartered Member of CILT in Hong Kong, a candidate has to satisfy the educational requirement of passing eight subjects; four are at Ordinary Level, which provide key knowledge for general management in transport and logistics. For the subjects at Advanced Level, there are two streams: *Transport Management Stream* and *Logistics Management Stream*. Candidates are required to choose either stream in which four specific subjects are designated.

Structure of the Examination

The structure of the Professional Qualifying Examination is shown below:

Ordinary Level
[Candidates have to complete all four subjects]
OL 1: Business Environment for Transport and Logistics
OL 2: Financial Management and Reporting for Transport and Logistics
OL 3: Marketing and Service Management
OL 4: Management and Decision Making

Advanced Level
[Candidates have to complete all four subjects within the chosen stream]

Transport Management Stream
AL 1: Law of Business and Carriage
AL 2: Transport Systems and Management
AL 3: Sustainable Transport
AL 4: Transport Policy and Planning

Logistics Management Stream
AL 1: Law of Business and Carriage
AL 5: Global Supply Chain Management
AL 6: Logistics Management
AL 7: Warehousing and Materials Handling

Features of the examination structure

i) Members (MILT) and former Associate Members elected before 30th September 2004 are exempted from taking the Ordinary Level examination subjects.

ii) In any one sitting, candidates are allowed to register for any number of subjects.

iii) Exemption of an Ordinary Level examination would not be granted with incomplete qualifications.

How to use the syllabi

The syllabi for the subjects in the Professional Qualifying Examination are written in terms of "Synopsis", "Outline Subject Content", "Standard of Knowledge and Competence" and "Key Learning Areas".

Synopsis portrays the aims, basic coverage and the importance of the subjects. Candidates will need to have a general idea on the "whys" these modules are included in the examination and how they are related to the transport and logistics industry.

Outline Subject Content illustrates the main areas that would be examined. This aspect will help candidates to focus their studies correctly.

Standard of Knowledge and Competence indicates what a candidate is expected to know in each subject and what a candidate should be able to grasp, conduct and perform effectively when he / she obtains the corresponding knowledge.

The *Key Learning Points* and *Coverage* provide and suggest the basic knowledge elements that should be included in the examination. Moreover, they serve as the essential topics to be studied by the candidates. The knowledge and ability involved in the key learning points are to be interpreted in the context of transport and logistics, whenever possible.

Taxonomy of Expected Learning Outcomes / Competencies stated in the CILTHK PQE Syllabus

Mainly for Ordinary Level

Cognitive Category	Scope	Action Verb
Knowledge	Recall data / information / theories / concepts.	Define; Describe; Identify, Know; List out; Name; Outline; Recognise, Select, State etc.
Comprehension	Understand the meaning, translation, interpolations and problems. State a problem in one's one words.	Comprehend; Convert; Define; Discuss; Distinguish; Explain; Extend; Generalise; Infer; Interpret, Portray; Predict, Relate; Rewrite; Summarise Understand; etc.
Application (Simple)	Use a concept / theory / model in a situation or prompted use of an abstraction. Applies what was learnt into novel / conditioned situations in a hypothetic / simple case.	Apply; Calculate; Compute; Construct; Decide; Demonstrate; Discover; Manipulate; Modify; Predict, Prepare; Produce; Relate; Solve; Use etc.

Mainly for Advanced Level

Cognitive Category	Scope	Action Verb
Application (Complex)	Use a concept / theory / model in a new situation or unprompted use of an abstraction. Applies what was learnt into complex / unconditioned situations in a real / hypothetic and complex case.	Apply; Calculate; Compute; Construct; Decide; Demonstrate; Discover; Manipulate; Modify; Predict, Prepare; Produce; Relate; Solve; Use etc.
Analysis	Divide materials or concepts into component parts so that its organisational structure may be understood. Distinguish between facts and inferences.	Analyse; Break down. Compare, Contrast; Deconstruct; Develop; Differentiate, Discriminate; Discuss; Distinguish; Examine; Identify; Illustrate; Infer; Outline; Relate; Select; Separate etc.
Synthesis	Build a structure or pattern from diverse elements. Put parts together to and from a whole, with emphasis on creating a new meaning or structure.	Categorise; Combine: Compile; Compose; Create; Develop; Devise; Design; Explain; Generate: Modify; Organise: Plan; Rearrange; Reconstruct; Relate; Reorganise; Review; Revise; Summarise etc.
Evaluation	Make judgments about the value of ideas or materials.	Appraise; Compare; Conclude; Contrast; Criticise; Critique; Defend; Determine; Discriminate; Discuss; Evaluate; Examine; Interpret; Justify; Relate; Summarise; Support etc.

Adapted from Learning Domains or Bloom's Taxonomy: The Three Types of Learning [www.nwlink.com/~donclark/hrd/bloom.html]

Ordinary Level

OL 1: Business Environment for Transport and Logistics

Synopsis

This subject presents the fundamental knowledge required of a para-professional in the transport and logistics industry. It covers aspects of the principles, ideas and framework for understanding how transport / logistics interacts with global trade and society.

Outline Subject Content

A. Overview of Transport, Logistics and Supply Chain
B. Transport and Logistics Systems - Elements and their Interrelationships
C. Passenger Transport and Transport Planning
D. Regulation and Control of Transport and Logistics System

Standard of Knowledge and Competence

A. Overview of Transport, Logistics and Supply Chain

The Candidate has to demonstrate the knowledge of:

- Overview of transport and logistics for organisations, communities and society
- Importance of transport and logistics in socio-economic development
- Stakeholders in transport and logistics, their varied concerns and values
- Economic principles of supply and demand on the transport and logistics industry
- Market structures of transport and logistics businesses
- Modal and intermodal characteristics and opportunities
- Concepts and theories on modal selection
- Government policies on the transport and logistics sector
- Concept of supply chain management
- Importance of supply chain strategies on production and consumption

The Candidate should be able to:

- Illustrate the impacts of transport and logistics in the context of socio-economic development
- Identify stakeholders' values, concerns and their behaviour in transport and logistics related issues
- Determine and analyse the market structure of the transport and logistics industry
- Compare and contrast different modes of transport and illustrate the pros and cons of different modes
- Select suitable modes of transport under various circumstances
- Explain the concepts of supply chain management and the emergence of the supply chain
- Illustrate the importance of setting up supply chain strategies

B. Transport and Logistics Systems – Elements and their Interrelationships

The Candidate has to demonstrate the knowledge of:

- The systems concept and its use in transport and logistics
- Various activities that comprise the elements in transport and logistics systems
- Concepts on lean/agile logistics and supply chain management
- Various internal and external factors that may affect the development of the industry

The Candidate should be able to:

- Use the system concept to identify the elements of transport and logistics operations and examine the interrelationships among the elements
- Apply total cost concepts to analyse transport and logistics problems
- Examine the impacts of various internal and external factors affecting the transport and logistics industry
- Understand the development of the concepts of lean logistics and supply chain management
- Understand the concepts of zero-inventory, modern distribution centre and cross-docking

C. Essentials of Urban Transport

The Candidate has to demonstrate the knowledge of:

- The supply and demand of urban transport
- The nature and planning of urban transport
- Regulation and de-regulation of the transport industry
- Current issues on urban transport

The Candidate should be able to:

- Explore the factors affecting the urban transport market
- Analyse the urban transport market with supply, demand and elasticity concepts
- Examine the nature and characteristics of urban transport
- Explain the terms mobility and accessibility
- Understand the nature and process of urban transport planning
- Illustrate the advantages and disadvantages of regulating and de-regulating urban transport
- Understand the environmental, social and safety issues on urban transport

D. Regulating and Control of a Transport and Logistics Systems

The Candidate has to demonstrate the knowledge of:

- Environmental impacts caused by the transport and logistics industry, sustainability and energy issues of transport and logistics
- Human resources and industry relations in the transport and logistics industry
- Key elements of national and international legislation
- Health and safety in the transport and logistics environment
- Security and risk management in the transport and logistics industry

The Candidate should be able to:

- Address the issues on environmental protection and the advocacy of sustainability
- Recognise the health and safety issues in the industry
- Examine the issues related to the labour market and manpower quality
- Understand the importance on enhancement of security measures and identification of risk factors
- Discuss contemporary issues in the industry in a holistic manner
- Discuss conventional transport and logistics issues, with alternative views

Key Knowledge Areas

A. Overview of Transport and Logistics

Key Knowledge Areas	Coverage
Relationship between transport and logistics and socio-economic development	• Functions of transport and logistics • Roles of transport and logistics in regional development and the growth of the economy • Transport and society • Transport and social welfare
The transport and logistics objectives, scope and products	• Nature of transport and logistics such as derived demand • Modal characteristics and intermodal operations • Multimodal and intermodal operations • Supply and demand of transport and logistics services • Scope and scale: international vs. national; urban vs. rural; passenger vs. freight etc.
Supply chain	• The emerging supply chain concept • Concepts on supply chain management • Importance of supply chain strategies
The institutional and market environment: privatisation, economic deregulation and competition	• Public finance and urban transport • Ownership and organisation of business • Government intervention towards transport and logistics • Market structure – monopoly, oligopoly, monopolistic competition, contestable market • Alliance, merger and acquisition

B. Elements of Transport and Logistics Systems

Key Knowledge Areas	Coverage
Basic elements of transport and logistics	• Elements of transport such as: modes, inter-modality, multi-modalism, types of operations and services, unit of carriage, unit of propulsion etc. • Elements of logistics such as: order management, customer services, material handling and packaging, warehouse management, inventory control, distribution, and procurement

	• Interrelationship among basic elements of transport and logistics • Modern distribution centre, cross-docking and zero inventory
System concept	• Application of system concept • Identifying key elements and examine interrelationship among elements in transport and logistics issues
Total cost concept	• Various costs and cost structures of different transport modes • Concept of cost trade-off and its applications • Load factors • Concepts of lean logistics and agile logistics
Improvement in technology	• Unit load concept and unit load devices • Economies of scale on unit of carriage • Advance in handling facilities and equipment • Advanced in information and telecommunication technology

C. Essentials of Urban Transport

Key Knowledge Areas	**Coverage**
Supply and demand of urban transport	• Market mechanism • Factors affecting supply and demand of urban transport • Factors affecting demand and supply elasticity • Various market structure for various modes of urban transport
Urban transport planning	• Mobility and accessibility • Nature and characteristics of urban transport • Role and processes of transport planning
Regulation and de-regulation	• Form and bodies involved in regulating urban transport • Advantages and disadvantages of regulation and de-regulation • Trends and forms of de-regulating urban transport • Fiscal measures such as subsidies and taxes
Current issues on urban transport	• Oversupply and congestion • Green and sustainable transport • Safety and security issues

D. Regulating and Control of Transport and Logistics System

Key Knowledge Areas	**Coverage**
Human resources management	• Contemporary human resources management theories • Factors affecting supply and demand of labour in transport and logistics • Labour supply and manpower quality issues • Industrial relationship, unions and strikes

Green Transport and sustainability	• Energy use and conservation, use of alternative fuel • Environmental considerations and green transport • Reserve logistics and green logistics • Issues on sustainability
Legal control	• National legislation on transport and logistics • International treaties and legislation processes • Regulatory bodies / mandatory bodies
Managerial control	• Financial and accounting controls • Worker productivity • In-sourcing and out-sourcing • Standard Operation Procedures (SOP), Key Performance Index (KPI) and benchmarking

Core Reading

Banister, D. (2011). *Transport and Urban Development*. Routledge, UK.

Christopher, M. (2023). *Logistics and Supply Chain Management*, 6th ed. Pearson.

Murphy, P.R. and Knemeyer, A. M. (2018). *Contemporary Logistics*. 12th ed. Pearson.

Victor, D. J. and Ponnuswamy, S. (2012). *Urban Transportation: Planning, Operation and Management*. McGraw Hill.

References

Button, K. (2022). *Transport Economics*. 4th ed. Edward Elgar.

Novack, R.A., Gibson, B.J., Suzuki, Y., and Coyle, J.J. (2019). *Transportation: A Global Supply Chain Perspective*, 9th ed. Cengage Learning.

Ordinary Level

OL 2: Financial Management & Reporting for Transport & Logistics

Synopsis

This subject is an introduction to financial accounting, cost and management accounting for candidates with limited or no prior knowledge of the subjects. It presents the fundamental knowledge required to understand and analyse financial statements. It also covers the aspects of the regulatory framework for financial reporting, cost accounting methods, techniques, budgeting process, as well as basic concepts of capital budgeting used for investment appraisal and evaluating financial performance.

The aims of this syllabus are to assess the student's ability to understand and / or to:

1. Explain the conceptual and regulatory framework of accounting, and general principles of accounting systems;
2. Explain the basic concepts and processes used to determine product and service costs;
3. Explain the various costing techniques and the role of budgets;
4. Apply the basic methods of capital budgeting on project evaluation and lease financing;
5. Apply and integrate the above concepts and techniques in simple reporting and financial planning in relation to a transport and logistics undertaking.

Outline Subject Content

A. Accounting Framework

1. Conceptual and regulatory framework
2. Objectives of financial reporting
3. Definition of revenue, expenses, assets and liabilities

B. Financial Statements and Reports

1. Key financial statements and their purposes
2. Analysis and interpretation of accounts

C. Cost Accounting Systems & Techniques

1. Different costing principles and techniques
2. Different costing systems and methods
3. Marginal costing and decision making
4. Activity-based-costing (ABC) approach

D. Budgeting

1. Budget theory and components
2. Budgeting process and preparation
3. Role of budget in business planning & control

E. Project Evaluation & Lease Financing

1. Basic methods of project evaluation
2. Cost-benefit analysis
3. Different sources of capital
4. Lease financing

F. Information Technology Applications

1. Business information system
2. Enterprise applications
3. Business/Artificial intelligence

Standard of Knowledge and Competence

A. Accounting Framework

1. Conceptual and regulatory framework

The Candidate has to demonstrate the knowledge of:

- The differences between financial and management accounting systems
- The fundamental accounting concepts, principles and bases
- The historical cost convention

The Candidate should be able to:

- Explain the function of financial and management accounting systems
- Identify and explain the fundamental accounting concepts, principles and bases
- Understand the impact of accounting standards on the preparation of accounting statements

2. Objective of financial reporting

The Candidate has to demonstrate the knowledge of:

- The different user groups and the objectives of financial statements
- The key functions of financial accounts and reporting

The Candidate should be able to:

- Identify different user groups who make use of accounting information
- Tell the different characteristics of accounting information required to meet users' objectives

3. Definition of revenue, expenses, assets and liabilities

The Candidate has to demonstrate the knowledge of:

- The definitions and nature of capital and revenue items, income, expenses and assets and liabilities

The Candidate should be able to:

- Explain the concepts of capital and revenue, income and expenses, and assets and liabilities
- Identify common items that appear on income statements and balance sheets

B. Financial Statements and Reports

1. Key financial statements and purposes

The Candidate has to demonstrate the knowledge of:

- The major kinds of financial statements of a firm
- The different functions and purposes of financial reports

The Candidate should be able to:

- Read and prepare simple financial statements
- Explain the financial performance reflected by a financial statement

2. Analysis and interpretation of accounts

The Candidate has to demonstrate the knowledge of:

- The common accounting ratios
- Limitation of ratio analysis
- Segment analysis: inter-firm and international comparisons

The Candidate should be able to

- Calculate and interpret simple accounting ratios
- Analyse financial statements and comment on performance
- Explain the limitations of accounting ratio analysis

C. Cost Accounting Systems and Techniques

1. Different costing principles and techniques

The Candidate has to demonstrate the knowledge of:

- The definitions of absorption and marginal costing
- The concepts of standard costing

The Candidate should be able to:

- Compare and contrast marginal and absorption costing principles in profit reporting
- Explain how standards are set in the logistics industry, and calculate operational variances

2. Different costing systems and methods

The Candidate has to demonstrate the knowledge of:

- The mechanics of each costing system and method: job, batch, process costing and cost allocation
- The application of costs for decision making

The Candidate should be able to:

- Compare and contrast job, batch and process costing
- Prepare and contrast cost statements for transport and logistics companies

3. Marginal costing and decision making

The Candidate has to demonstrate the knowledge of:

- What are fixed, variable and semi-variable costs
- The contribution concept and its applications

The Candidate should be able to:

- Identify cost behaviour and explain the contribution concept
- Calculate the breakeven point, margin of safety and profit / volume ratio
- Prepare cost-volume-profit analysis

4. Activity-based-costing (ABC) approach

The Candidate has to demonstrate the knowledge of:

- ABC as a potential profit reporting system

The Candidate should be able to:

- Compare ABC with traditional costing methods
- Evaluate ABC as an alternative system of cost accounting

D. Budgeting

1. Budget theory and components

The Candidate has to demonstrate the knowledge of:

- The Budget theory
- Reasons for preparing budgets
- The various budget components

The Candidate should be able to:

- Identify different functional budgets
- Prepare a simple cash budget

2. Budgeting process and preparation

The Candidate has to demonstrate the knowledge of:

- The conventional budgeting process
- The different approaches in budget preparation

The Candidate should be able to:

- Evaluate and apply alternative approaches to budgeting
- Identify controllable and uncontrollable costs
- Prepare simple functional budgets

3. Role of budget in business planning & control

The Candidate has to demonstrate the knowledge of:

- Concepts of budget variances
- The use of budgets for control purposes
- Behavioural issues in budgeting

The Candidate should be able to:

- Describe and explain the potential purposes of budgets
- Prepare simple reports comparing actual and budgeted results

E. Project Evaluation & Lease Financing

1. Basic methods of project evaluation

The Candidate has to demonstrate the knowledge of:

- The basic concepts of capital budgeting

- The common methods of project evaluation

The Candidate should be able to:
- Calculate investment returns by using NPV / IRR
- Compare and contrast the different methods of capital budgeting

2. Cost-benefit analysis

The Candidate has to demonstrate the knowledge of:
- The basic concepts of cost-benefit analysis
- Relevant and irrelevant costs and benefits

The Candidate should be able to:
- Identify and analyse relevant project costs, benefits and risks
- Apply cost-benefit analysis to decision making

3. Different sources of capital

The Candidate has to demonstrate the knowledge of:
- Types of features of short and long term finance
- Equity / share capital and debt financing

The Candidate should be able to:
- Explain the features of different types of finance
- Identify the costs so involved

4. Lease financing

The Candidate has to demonstrate the knowledge of:
- Purposes of using lease financing
- Different forms of lease financing

The Candidate should be able to:
- Explain the different between operating lease, hire purchase, and finance lease
- Compare the advantages of different forms of lease in relation to financial planning

F. Information Technology Application

The Candidate has to demonstrate the knowledge of:
- Basic understanding of business information systems and enterprise applications
- The use of information technology to enhance financial management and reporting

The Candidate should be able to:
- Explain how business information systems and enterprise applications can enhance financial management and reporting
- Appreciate the latest development of information technologies such as new enterprise systems and business/artificial intelligence

Key Knowledge Areas

A. Accounting Framework

1. Conceptual and regulatory framework

Key Knowledge Areas	Coverage
Financial vs. management accounting systems	• Definition and nature of an accounting system • Different functions of each system • Characteristics of information provided
Fundamental accounting concepts, principles and bases	• Definitions • The accounting equation • Historic cost basis
Accounting standards	• International accounting standards (IAS) • Effect on production of financial statements • Other regulatory tools and recent developments in financial reporting

2. Objectives of financial reporting

Key Knowledge Areas	Coverage
Different user groups	• Various stakeholders and their concerns • Stewardship
Purposes of financial reporting	• Profit measurement • Assets valuation and liabilities measurement • Concept of accountability

3. Definitions of revenue, expenses, assets and liabilities

Key Knowledge Areas	Coverage
Income and expense	• Nature and types of revenue and expense • Concept of capital and revenue items
Assets, liabilities, and equity	• Nature and types of equity, assets and liabilities • Accruals and prepayments

B. Financial Statements and Reports

1. Key financial statements and purposes

Key Knowledge Areas	Coverage
Key financial statements	• Income statement • Balance sheet • Cash flow statement
Purposes and information provided	• Performance measurement • Assets versus liabilities • Concept of net worth • Liquidity versus profitability

2. Analysis and interpretation of accounts

Key Knowledge Areas	Coverage
Accounting ratios	• Definitions

	• Types of ratios for financial analysis • How to calculate and interpret ratios
Limitations of ratio analysis	• Comparability of industries • Variation under different accounting policies
Segment analysis	• Application of ratios for inter-firm and international comparisons • Benchmarking

C. Cost Accounting Systems & Techniques

1. Different costing principles and techniques

Key Knowledge Areas	**Coverage**
Absorption vs. marginal costing	• Definitions and concepts • Compare and contrast the two systems • Application under different costing environments
Standard costing	• Definitions and concepts • How to set standards • Calculation of variances • Behavioural aspects of setting standards costs

2. Different costing systems and methods

Key Knowledge Areas	Coverage
Basic concepts used to determine product or service costs	• Common costing systems and methods • Compare and contrast job, batch, contract and process costing systems
Functions of costing systems	• Reasons for using costing systems • Functions of cost statements for service organisations

3. Marginal costing and decision making

Key Knowledge Areas	Coverage
Fundamental concepts for marginal costing	• Relevant costs and sunk costs • Fixed, variable and semi-variable costs • Contribution concept
What is C-V-P analysis	• Definitions of break-even point and margin of safety • How to prepare cost-volume-profit analysis • Application of C-V-P in decision making

4. Activity-based-costing (ABC) approach

Key Knowledge Areas	Coverage
What is the ABC approach	• Basic concepts • Application of ABC as a system of profit reporting and performance measurement • ABC compared with traditional costing methods

D. Budgeting

1. Budget theory and components

Key Knowledge Areas	Coverage
Budget theory	• Definition of budget • Reasons for preparing budgets • Information technology and budgeting
Budget components	• Functional budgets • Master budgets • Budget profit & loss account, balance sheet • Cash budgets

2. Budget process and preparation

Key Knowledge Areas	Coverage
Budget process	• Methods on and the process of preparing a traditional budget • Recent developments in budgeting processes
Approaches in budgeting	• Creation of budgets under incremental approaches, zero-based budgeting, and activity-based budgets • Pros and cons of different approaches

3. Role of budget in business planning & control

Key Knowledge Areas	Coverage
Role of budget in business	• As a tool for planning and control • Other possible purposes of budget like motivation and communication
Behavioural issues and non-financial indicators	• Impact of budgetary control systems on human behaviour • Role of non-financial performance indicators
Budget variances	• Reporting of actual performance against budget • Variance analysis / responsibility accounting

E. Project Evaluation & Lease Financing

1. Basic methods of project evaluation

Key Knowledge Areas	Coverage
Fundamentals of capital budgeting	• Common methods used to evaluate project profitability • Net present value (NPV), internal rate of return (IRR), payback period, average rate of return • Computation of investment return under each method
NPV method vs. IRR method	• Compare and contrast differences between the two commonly used approaches • Selection of the appropriate method

2. **Cost-benefit analysis (CBA)**

Key Knowledge Areas	**Coverage**
Basic concepts of relevant costs and benefits	• Identification of a project's relevant costs and benefits • Relevant vs. irrelevant costs and benefits • Financial and non-financial risks
Application of CBA in decision making	• Analysis on relevant costs and benefits of an investment project • Limitation of CBA in project evaluation

3. **Different sources of capital**

Key Knowledge Areas	**Coverage**
Different sources of capital	• Long term and short term sources of capital • Equity versus debt financing • Costs of capital involved • Other factors than costs

4. **Lease financing**

Key learning points	**Coverage**
Types and features of lease financing	• Concept of lease financing, operating lease and finance lease • Compare and contrast different forms of leases in financial planning in a transport / logistics undertaking • Effects of taxation

F. Information Technology Application

Key Knowledge Areas	**Coverage**
Business information systems	• Business features • System functionality and performance • Collaboration • Roles
Enterprise applications	• Enterprise Systems
Business/Artificial intelligence	• Business intelligence • Artificial intelligence • Knowledge management

Core Reading

Horngren, C.T., Datar, S.M. and Rajan, M.V. (2011). *Cost Accounting: A Managerial Emphasis*, 14th ed. Prentice Hall, US.

Williams, J., Haka, S., Bettner, M. and Carcello, J. (2011). *Financial Accounting*. McGraw-Hill, US.

References

Drury, C. (2015). *Management and Cost Accounting*, 9th ed. Cengage Learning EMEA, US.

Laudon, K.C. and Laudon, J.P. (2014). *Essentials of Managing Information Systems*, 11th ed. Prentice Hall, US.

Ross, S. Westerfield, R., Jordan, B. (2012). *Fundamentals of Corporate Finance*, 10th ed. McGraw-Hill, US.

Ordinary Level

OL 3: Marketing and Service Management

Synopsis

Markets are increasing characterised by demanding customers and consumers. A paradigm shift has changed the market from producer-led to consumer-driven. Firms can no longer rely on the classic 4Ps of product, price, promotion and place to support its market-leadership. To survive and preferably grow, winning firms must satisfy customers' need on product innovation and service assurance, as well as those who can maintain intimate relationships with, and deliver long-term value to, the customers.

The subject provides the underlying knowledge for marketing and service management in both theoretical and practical contexts. It addresses the uniqueness of the transport and logistics field in carrying out marketing activities and service management practices. The basic concepts, ideas and theories on marketing policy, market research, service quality and customer services form the substantial body of the subject. Moreover, social and ethical issues are also discussed. Various approaches to extend the concepts to international transport and logistics services are included.

Outline Subject Content

A. Understand Services and Marketing
B. Marketing Environment and Marketing Policy
C. Market Characteristics and Market Research
D. Service Management and Service Quality
E. Social and Ethical Issues in Marketing
F. Developing Customer Relations and Customer Satisfaction Measurement

Standard of Knowledge and Competence

A. Understand Services and Marketing

The Candidate has to demonstrate the knowledge of:

- The basic concepts of services, customer services and derived services
- The differences between physical products and services
- Various characteristics and attributes of services
- The importance of quality and reliability in transport and logistics services
- Concepts of marketing mix and service marketing mix
- Various marketing techniques
- Use and limitations of marketing in not-for-profit logistics and transport activities

The Candidate should be able to:

- Use basic concepts of services and marketing to analyse the services provided in the transport and logistics sector
- Distinguish between physical products and services
- Illustrate the importance of quality and reliability through transport and logistics services
- Examine marketing mix concepts through case studies
- Apply service marketing mix concepts to analyse cases
- Understand the limitations and uses of marketing in not-for-profit logistics and transport activities

B. Marketing Environment and Marketing Policy

The Candidate has to demonstrate the knowledge of:

- The nature of activities of transport and logistics
- Various kinds of market policies, features and advantages
- How marketing policy helps to gain and lose competitive advantages
- Segmentation and positioning strategy
- Factors affecting marketing decisions
- How the marketing environment will structure competitiveness
- Issues on communication and manpower development

The Candidate should be able to:

- Illustrate the distinctive nature of transport and logistics activities in marketing
- Examine how marketing policy would affect the positioning of the services
- Evaluate what factors are involved and how these factors affect the marketing decisions
- Examine the degree of competitiveness in the marketing environment
- Discuss other issues in marketing such as market communication, manpower and organisational issues

C. Market Characteristics and Market Research

The Candidate has to demonstrate the knowledge of:

- Various types of topologies on market characteristics
- Various market research techniques, their usages and advantages
- Methods to collect market information and intelligence
- How information systems help the marketing operations

The Candidate should be able to:

- Identify different market types and illustrate their characteristics
- Suggest suitable market research techniques and design market research plans
- Choose appropriate methods or approaches to obtain market intelligence
- Illustrate the importance of information systems in marketing
- Identify the benefits of using information systems in service marketing

D. Service Management and Service Quality

The Candidate has to demonstrate the knowledge of:

- Components in a quality management system
- Processes, tools and techniques for quality management
- Cost and benefits of a quality management system
- The relationships between customer experience, customer satisfaction and service quality
- Reasons for service failure
- The concepts of recovery strategies and quality assurance programmes
- How to design a quality assurance programme
- Organisational issues in service management
- Relationship between marketing and operations
- Roles and elements of services portfolios
- Functions and the importance of customer participation
- Various issues on manpower, training, motivation and human issues in service marketing
- Working conditions and the stressfulness of frontline staff
- Techniques and considerations for hiring suitable persons for service marketing or customer services

The Candidate should be able to:

- Study a quality management system and suggest appropriate tools and techniques required
- Illustrate the costs of quality in the transport and logistics industry
- Relate customer experience, customer satisfaction and service quality
- Illustrate the factors of service failures and the impacts on customer satisfaction
- Identify the needs for setting recovery strategies
- Illustrate the elements and design of a suitable quality assurance programme
- Discuss issues on the organisation of a service management system
- Discuss the relationship between marketing and operations
- Illustrate the functions of and elements in a service portfolio and understand the considerations in developing it
- Illustrate the importance of customer participation
- Discuss various manpower planning issues for customer services and service management

E. Social and Ethical Issues in Marketing

The Candidate has to demonstrate the knowledge of:

- Emerging social issues on marketing the transport and logistics industry
- Environmental protection as a marketing tool
- Concepts and processes on building trust between the buyer and seller
- Factors affecting the degree of customer loyalty
- Impacts on the business environment and society by service marketing
- Social and political issues on the transport and logistics sector
- Marketing and issues of the globalised market

The Candidate should be able to:

- Discuss various social considerations as marketing issues
- Discuss the political impacts or issues on marketing transport and logistics services
- Discuss the environmental issues as considerations in marketing
- Identify the importance of relationship marketing
- Illustrate the process of building up buyer-seller relationships
- Recognise social responsibility and political acceptability as marketing considerations
- Identify marketing as barrier to entry in the transport and logistics sector
- Discuss the issues on the emerging global market

F. <u>Developing Customer Relations and Customer Satisfaction Measurement</u>

The Candidate has to demonstrate the knowledge of:

- The importance of customer loyalty
- Concepts, processes and elements of customer service management
- Concept on, elements of and factors affecting customer expectations
- Concepts on service recovery systems and various types of effective service recovery systems
- Various proactive actions that are useful in enhancing customer services
- Elements of a customer feedback mechanism and factors affecting the effectiveness of this mechanism
- Concepts on solicited and unsolicited customer feedback
- How to measure customer satisfaction

The Candidate should be able to:

- Discuss the importance of customer loyalty and the factors affecting it
- Discuss various issues in customer service management
- Evaluate the effectiveness of various service recovery systems
- Illustrate the uses, benefits and effectiveness of proactive actions
- Discuss the effectiveness of customer feedback mechanisms
- Distinguish between solicited and unsolicited customer feedback
- Discuss the various issues in measuring customer satisfaction

Key Knowledge Areas

A. Understand Service and Marketing

Key Knowledge Areas	Coverage
Concepts and distinctive aspects of services	• Services industries • Services as products • Customer services • Derived services

Differences between goods and services	• Characteristics of services
	  ➢ Intangibility
	  ➢ Inseparability
	  ➢ Perishability
	  ➢ Variability
	• Quality and reliability

Marketing	• Marketing Mix

	➢ Service marketing mix ➢ Application of service marketing mix in transport and logistics • Market orientation • Marketing techniques • Marketing of not-for-profit activities

B. Marketing Environment and Marketing Policy

Key Knowledge Areas	Coverage
Product nature and transport and logistics activities	• Time-based competition ➢ Time to market ➢ Time to serve ➢ Time to react ➢ Strategies for lead-time reduction ➢ Value-added time and non-value-added time
Marketing policy	• Market policies and measuring their successfulness • Gain and loss of competitive advantage • Steps to develop a positioning strategy
Factors affecting marketing decisions in transport and logistics	• Political • Economic • Social • Technological • Legal
Marketing environment	• Regulation and de-regulation • Contestability • Changing competition
Other issues on marketing environment	• Market communication • People issues • Organisational arrangement

C. Market Characteristics and Market Research

Key Knowledge Areas	Coverage
Market characteristics	• Market segmentation and differentiation • Core and augmented products • Geographical factors
Market research techniques	• Quantitative vs. qualitative • Multidimensional scales • Interviews and questionnaires • Meetings, panels and focus groups
Collection of market intelligence	• Complaint Solicitation • Critical incidents studies • Post transaction survey • Service expectation • Mystery customers • Lost Customer Research
Application of information systems	• On-line marketing ➢ Concept and objectives

	➢ Development ➢ Limitations • Marketing information systems • Use of internet, websites, portals, social media and mobile applications • Big data, marketing analytics and artificial intelligence

D. Service Management and Service Quality

Key Knowledge Areas	**Coverage**
Quality management	• Quality management system • Tools and techniques • Costs of quality
Service quality	• Customer experience • Service quality and customer satisfaction • Service failure and recovery strategies • Design quality assurance programmes
Service management	• Organisational issues • Relationship between marketing and operations • Developing a portfolio of services • Enhancing customer participation
Manpower management	• Difficult and stressful frontline activities • Cycle of failure, mediocrity and success • Service leadership and culture • Hire the right people ➢ Behaviour observation ➢ Personality tests ➢ Multiple, structured interviews ➢ Job Preview • Training, involvement and teamwork • Motivate and energise people

E. Social and Ethical Issues in Marketing

Key Knowledge Areas	**Coverage**
Social needs and effective demand	• Long service contract • Stability and reliability • Disadvantaged people • Green image • Social responsibility • Political enhancement • Marketing as a barrier to entry
Trust between buyer and seller	• Needs for relationship marketing • Buyer-seller relationships
Globalised logistics marketing management	• Integrated services marketing in logistics • Offshore sourcing and manufacturing • Global logistics strategy and synergy

F. Developing Customer Relations and Customer Satisfaction Measurement

Key Knowledge Areas	Coverage
Build up customer relationships and develop customer loyalty	• Customer loyalty and its importance • Customer service management • Customer complaint behaviour • Customer expectations • Effective service recovery systems ➢ Identify service complaints ➢ Resolve service complaints ➢ Learning from experience
Proactive action	• Proactive attitudes • Planned procedures • Trained skills • Empowered Employees
Customer feedback mechanism	• Service Guarantees • Compensation to customers • Solicited and unsolicited customer feedback • Analysis, reporting and dissemination
Measure of customer satisfaction	• Customer perceptions • Identification of key service aspects • Techniques: Surveys, focus groups, interviews • Quantitative vs. qualitative methods • Use of the results

Core Reading

Armstrong, G., Kotler, P., and Opresnik, M.O. (2020). *Marketing: An Introduction*, 14th ed. Pearson.

Hoffman, K.D. and Bateson, J.E.G. (2017). *Services Marketing: Concepts, Strategies & Cases*, 5th ed. Cengage Learning.

Zeithaml, V.A., Bitner, M.J., and Gremler, D.D. (2018*). Services Marketing: Integrating Customer Focus Across the Firm*, 7th ed. McGraw-Hill.

References

Kerin R., Steven H. and Rudelius W. (2014). *Marketing*, 12th ed. McGraw-Hill, New York.

Palmer, A. (2014). *Principles of Services Marketing*, 7th ed. McGraw-Hill, UK.

Wirtz, J., and Lovelock, C.H. (2022). *Services Marketing: People, Technology, Strategy*, 9th ed. World Scientific.

Zarei, E. (2014). *Logistics Marketing*, 2nd ed. DMA4U.

Ordinary Level

OL 4: Management and Decision Making

Synopsis

This subject presents knowledge of the key generic aspects of management that are involved in transport and logistics practices and provides a basis for professionals in the various sectors to understand the basic concepts of management in order to comprehend the various theoretical aspects of management; to understand the knowledge and skills required to carry out the role of a manager efficiently and effectively.

Outline Subject Content

A. Basic Concepts on Management
B. Developing Organisation Strategies
C. Planning and Decisions Making
D. Measuring Performance and Innovation
E. Project Management and Negotiations
F. Leadership, Management and Development of People
G. Productivity, Quality and Operations Management
H. Managing Information System
I. Business Ethics, Corporate Social Responsibility / Environment Social and Governance

Standard of Knowledge and Competence

A. Basic Concepts and Theories on Management

The Candidate has to demonstrate the knowledge of:
- The nature, principles and scope of management
- Various management theories and their contributions to effective management
- The elements of the management process

The Candidate should be able to:
- Identify and explain the basic management functions and processes of management in organisations
- Examine the roles of manager in transport and logistics organisations
- Describe contemporary approaches to and various perspectives on management

B. Developing Organisation Strategies

The Candidate has to demonstrate the knowledge of:
- Components, levels and formulation of management strategies
- Concepts of strategic management
- Frameworks and processes on formulating strategy

- Implementation of organisation strategies

The Candidate should be able to:

- Identify and discuss the major functional strategies within the context of the transport and logistics industry
- Compare the differences between strategic, tactical and operational plans
- Examine the essential elements and steps in formulating strategies
- Describe the steps and identify the difficulties in the implementation of organisation strategies

C. Organisation Planning and Decision Making

The Candidate has to demonstrate the knowledge of:

- The management hierarchy
- Mission, goals, objectives, strategies and policies
- Nature of decisions and the organisational hierarchy
- Information needs of decision makers
- Common decisions in the logistics and transport trades
- Common planning and decision making tools: optimisation and scheduling

The Candidate should be able to:

- Use organisation charts to understand and represent the hierarchical relationships in an organisation
- Describe the relationships between mission and the hierarchy faced by managers in different positions of the organisation
- Identify the information needs of people in different positions in an organisation
- Describe the nature and characteristics of common decisions in the logistics and transport trades
- Describe some commonly used tools for handling optimisation and scheduling problems

D. Measuring Performance and Innovation

The Candidate has to demonstrate the knowledge of:

- Productivity measurement and management
- Determination of standard operation procedures and service level agreements
- Key performance indicators and their usage
- The benchmarking process and technique
- Managing Innovation

The Candidate should be able to:

- Identify and evaluate measures of productivity in transport and logistics activities
- Suggest and construct suitable key performance indicators
- Explain the usage of standard operation procedures and the importance of setting service level agreements
- Examine the practices of benchmarking in the transport and logistics industry
- Recognise the importance of innovation in the transport and logistics industry

E. Project Management and Negotiation

The Candidate has to demonstrate the knowledge of:

- Concepts of project management
- Project management and quality control
- Tools for project management
- Functions of, processes of, and techniques of negotiation
- Negotiation strategies: conflict resolution and communication

The Candidate should be able to:

- Examine the usage of project management within the context of transport and logistics management
- Suggest suitable tools and methods for project management
- Explain the functions and processes of negotiation
- Formulate negotiation strategies

F. Leadership, Motivation and Development of People

The Candidate has to demonstrate the knowledge of:

- Leadership styles and traits
- Correlation between needs and motivation
- Various theories on motivation
- Types of groups and teamwork
- Interpersonal and groups conflicts

The Candidate should be able to:

- Discuss the essential traits of a leader
- Use different theories on leadership to illustrate its importance on the success of transport and logistics firms
- Recognise the use of monetary and non-monetary motivation in the transport and logistics industry
- Use different motivation concepts to explain the behaviour of employees
- Discuss the ways that groups may be developed as effective teams
- Identify techniques for managing work teams in the transport and logistics business

G. Productivity, Quality and Operations Management

The Candidate has to demonstrate the knowledge of:

- The nature of value, productivity and quality
- Measuring productivity and quality
- The resource transformation process
- Operations planning and control
- Factors affecting productivity and quality
- The basic tools for improving productivity and quality
- Total quality management
- Business process reengineering
- Concepts of the value chain and supply chain
- Managing the global supply chain

The Candidate should be able to:

- Describe the relationship between customer value, productivity and quality
- Describe and apply the tools for measuring productivity and quality
- Describe the elements of the transformation process and describe the operations of an organisation as a resource transformation process
- Describe the elements and steps in operations planning and control
- Identify and describe the factors affecting the productivity of an organisation and the quality of its products or services
- Explain the nature of basic tools for the improvement of productivity and quality
- Describe the underlying assumptions, key elements and processes, advantages and limitations of total quality management, business process reengineering, and supply chain management

H. Managing Information Systems

The Candidate has to demonstrate the knowledge of:

- Types, flow and users of information in transport and logistics
- Needs and importance of information
- Strategic roles of information systems
- Computer hardware and software typologies
- Different concepts and tools for data management
- Different types of information systems
- Trend of network development
- Concepts and processes of data security management
- Methods and tools that are used in securing data, and computer and network security

The Candidate should be able to:

- Illustrate the information flow in logistics and transport operations
- Identify the needs and importance of using IT to facilitate information flow
- Understand the strategic role of information systems
- Comprehend the functions of different components of information systems
- Evaluate the suitability of various hardware and software to be used
- Compare the advantages and disadvantages of data storage methods
- Explain the use of database structures and processes of data management
- Describe the features and functions of different information systems
- Illustrate which aspects of information systems can help in transport and logistics operations
- Review the potential risks of accessing the Internet and the importance of security
- Identify various types of access control and data security tools

I. Business ethics and corporate social responsibility

The Candidate has to demonstrate the knowledge of:

- Concepts of managerial ethics
- Arguments for and against business social responsibility
- Various aspects and means for developing corporate social responsibility
- Application of CSR / ESG in the transport and logistics industry

The Candidate should be able to:

- Demonstrate the awareness in business ethics including but not limited to application of AI-related tools in the context of transport and logistics
- Discuss the challenges on managing social responsibility
- Discuss the processes and considerations in formulating a corporate social responsibility plan
- Examine the relationship between government and transport and logistics organisations regarding social responsibility
- Understand the importance and latest development ESG related framework

Key Knowledge Areas

A. Basic Concepts and Theories on Management

Key Knowledge Areas	Coverage
Nature, principles and scope of management	• Characteristics of organisations • Different organisational levels • Role of managers, such as Mintzberg's managerial roles • Internal and external environment • Management in the global environment
Management functions and process	• Elements of the management process: planning, organising, leading and controlling • Managerial roles and managerial skills • Scope of management
Management theories	• Classical management theories • Rational and behavioural aspects • Various approaches: human resources approach, quantitative approach and contingency approach
Roles of managers	• Levels of management and areas of management • Critical roles and skills of being a manager
Management in transport and logistics	• Rational planning and operations management • Quantitative vs. qualitative approaches • Public administration and business management • Roles for public image, innovation and social responsibility

B. Developing Organisation Strategies

Key Knowledge Areas	Coverage
Strategy formulation	• Setting of strategic goals • Strategy analysis tools such as: SWOT, Porter's competitive strategies, five forces model, product life cycle analysis • Cascading of objectives
Strategic management process	• Operational, tactical and strategic plans • Formulation and implementation • Vertical integration, alliance, diversification and expansion

	• Review of strategies
Functional strategies	• Marketing, financial, production, human resources, research and development • Examples of functional strategies in the transport and logistics industry
Implementation	• Approaches on implementation: through structure, leadership, technology and human resources • Performance and implementation • Strategic implementation in transport and logistics firms

C. Organisation Planning and Decision Making

Key Knowledge Areas	**Coverage**
Organisation goals	• The managerial hierarchy • Mission, goals, objectives, strategies and policies • Hierarchy of goals
Planning and the organisational hierarchy	• Nature of decisions and the organisational hierarchy • Planning at the divisional and functional levels
Information and planning	• Information needs of decision makers •
Planning and decision making techniques in the logistics and transport trades	• Common decisions in the logistics and transport trades • Common planning and decision making tools: optimisation and scheduling

D. Measuring Performance and Innovation

Key Knowledge Areas	**Coverage**
Managing productivity and quality	• Meaning of productivity, its importance and trends • Productivity-quality connections •
Performance measures	• Setting up of standard operation procedures • Determination of key performance indices • Establishment of service level agreements
Benchmarking	• Concept and purposes of benchmarking • The benchmarking process • Benchmarking in the transport and logistics industry
Innovation	• Quantum vs. incremental product innovations • Strategies to promote innovation

E. Project Management and Negotiation

Key Knowledge Areas	**Coverage**
Project Management	• Concepts of project management • Role of project management • Project management as quality control

Elements and tools of project management	• Mission, vision, goals and objectives • Budgeting, work flow, schedule, milestones, control and evaluation • Tools: arrow diagram, Gantt chart, critical path analysis, risk matrix etc.
Conflicts and negotiation	• Types of sources of conflicts • Distributive negotiation and Integrative Bargaining • Negotiation strategy, games theory • Process of formulating negotiation strategy • Negotiation in transport and logistics issues

F. Leadership, Motivation and Development of People

Key Knowledge Areas	**Coverage**
Leadership and its styles	• Leader vs. non-leaders • Traits of a leader • Main leadership styles • Classical and contemporary views on leadership
Motivation theories and their applications	• Correction between needs and motivation • Motivation theories: Maslow, McGregor, Herzberg, expectancy, equity and goal-setting theory etc. • Pay and motivation and uses of monetary and non-monetary motivators
Individual and group behaviour	• Different aspects of organisational behaviour • Components of attitude, personality, perception and learning • Group dynamics: groups in organisations and group conformity • Political behaviour in organisations
Managing work teams	• Stages of group and team development • Techniques on managing work teams • Interpersonal and group conflicts • Conflict resolution • Multicultural environments

G. Productivity, Quality and Operations Management

Key Knowledge Areas	**Coverage**
Productivity and quality	• The nature of value, productivity and quality • Measuring productivity and quality
Operations management system	• Resource transformation process • Operations planning and control
Improving productivity and quality	• Factors affecting productivity and quality • Basic tools: operations research, value engineering, work simplification, statistical control and quality circles • Total quality management • ISO framework, continuous improvement and

	business process reengineering
Supply chain management	• Concepts of the value chain and supply chain • Managing the global supply chain

H. Managing Information Systems

Key Knowledge Areas	**Coverage**

Information and communication	• Types of information
	  ○ Pre-transaction, transaction and post-transaction
	  ○ Pre-trip or en route
	• Information users
	  ○ Shipper; carrier; receiver etc.
	  ○ Passengers; drivers, the public
	• Information flows

Information Systems	• System concept
	• Input, processing, output
	• Feedback and control
	• Types of information systems
	  ○ Operations support systems
	  ○ Management support systems
	  ○ Knowledge management systems
	  ○ Functional business systems
	• People resources and institutional arrangements

Information Technology	• Data management • Artificial Intelligence

Strategic role of information technology	• Strategic advantage
	  ○ Cost Reduction
	  ○ Differentiation
	  ○ Innovation
	  ○ Promote growth
	  ○ Formation of alliances
	• Support management decision-making processes

Security management of information technology	• System vulnerability • Types of risk in e-Business • Risk assessment and reduction • System Auditing • Various types of security control
Managing data resources	• Data storage • Data structure • Data management
Networks	• Wide area and local area networks • Interconnected networks – Internet, Intranet and Extranet • Client / server and inter-organisational network • Telecommunication and wireless systems • Development trends in network technology
Changing roles of information systems	• Data processing • Management reporting

	• Decision support • Strategic information • Electronic business and commerce
Information system and logistics	• Web-based platforms as communication devices • Documentation transfer • Extend connectivity with trading partners • Enhance customer services • Logistics management systems • E-government and logistics practices

I. Business Ethics and Corporate Social Responsibility

Key Knowledge Areas	**Coverage**
Stakeholders and ethics	• Nature of ethics • Ethics and law • Stakeholder model of responsibility
Business ethics and social responsibility	• Business and managerial ethics • Social consciousness • Societal ethics; occupational ethics, individual ethics and organisational ethics
Corporate social responsibility (CSR) / Environmental, Social and Governance	• Importance of CSR / ESG initiatives • Various aspects of application of CSR / ESG • Approaches to social responsibility • Organisation culture and social responsibility

Core Reading

David, F.R. (2023). *Strategic Management: A Competitive Advantage Approach, Concepts and Cases*, 17th ed. Pearson, US.

Robbins, S.P., De Cenzo, D.A. and Coulter, M. (2020). *Fundamentals of Management: Essential Concepts and Applications*, 11th ed. Pearson, US.

Griffin, R.W. (2022). *Management,* 13th Ed. Cengage Learning, US.

References

Robbins, S.P. and Coulter, M. (2017) *Management*, 14th ed. Pearson, US.

Johnson, G., Scholes, K. and Whittington, R. (2015). *Fundamentals of Strategy*, Pearson, US.

Laudon, K.C. and Laudon, J.P. (2023). *Essentials of Managing Information Systems*, 15th ed. Prentice Hall, US.

Sunil Luthra, Dixit Garg, Ashish Agarwal, Sachin K. Mangla (2020), *Total Quality Management (TQM) - Principles, Methods, and Applications*, CRC Press, US

Advanced Level

Transport Management Stream / Logistics Management Stream

AL 1: Law of Business and Carriage

Synopsis

This subject gives an introduction to the basic business and carriage law. It covers two main general legal principles of business law, namely negligence and contract. The law covers the carriage of goods by air, sea and land, and their associated international conventions, insurance and arbitration – an alternative dispute resolution method that is getting more and more important in the transport and shipping industry. It is the intention that knowledge of the general concepts and understanding of the associated legal principles and applications are sufficient to meet the expectation of this subject.

Outline Subject Content

A. Legal Systems
B. Law of Contract
C. Law of Negligence
D. Law of Agency
E. Law of Carriage
F. Arbitration
G. Insurance

Standard of Knowledge and Competence

A. Legal Systems

The Candidate has to demonstrate knowledge of:

- Categories of law
- Sources of law
- Legislative procedures
- International conventions
- Ordinances and regulations related to international trade, transport and logistics in Hong Kong

The candidate should be able to:

- Develop ability to address legal issues by understanding the national jurisdiction, sources of legal power
- Describe law making and amendment processes
- Understand how international treaties or conventions may have legal implications on business operations

- Identify relevant ordinances and delegated legislation in Hong Kong that regulate international trade / passenger transport / shipping / logistics operations

B. Law of Contract

The Candidate has to demonstrate knowledge of:

- The essential elements to form a contract
- The terms of a contract
- The privity of a contract
- The factors affecting the validity of a contract
- The discharge of a contract
- The remedies for breach of contract

The Candidate should be able to:

- Explain the three elements, namely the intention to create legal relations, the offer and acceptance and the consideration
- Understand the differences between terms and mere representation, conditions and warranties and expressed and implied terms
- State the case of "Dunlop Pneumatic Tyre Ltd vs. Selfridge & Co Ltd expressed by Viscount Haldane LC (1915) and the exceptions to the doctrine of privity of contract
- Explain the meaning of misrepresentation, mistake, duress, undue influence, incapacity and illegality
- Know how a contract can be discharged by performance, agreement, breach or frustration
- Identify the right to damages and the equitable remedies for breach of contract
- Apply legal concepts on analysing international trade, transport or logistics operations cases.

C. Law of Negligence

The Candidate has to demonstrate knowledge of:

- The general principle of the law of negligence (duty of care)
- A breach of the duty
- The meaning of causation of remoteness of damages
- The defence available
- The remedies

The Candidate should be able to:

- Explain the meaning of the standard of care and when a duty of care arises
- Express the objective test / guidelines on a reasonable person related to breach of duty
- Understand the "but for" test in Cork vs. Kirby Maclean (1952) and the reasonable foreseeable objective test for remoteness
- Explain what are contributory negligence, consent and exception clauses in business

D. Law of Agency

The Candidate has to demonstrate knowledge of:

- The general nature of agency
- Appointment of agents and formation of agency

- Authorities, rights and duties of an agent
- Liabilities for unauthorised acts
- Termination of agency

The Candidate should be able to:

- Understand the nature of agency in commercial contexts especially in the transport and logistics context
- Illustrate different ways of appointing an agent and the formation of an agency
- Examine the rights and duties of the principal and agent in the context of transport and logistics operations
- Examine the liabilities that might be taken by an agent
- Describe the reasons and process on termination of an agency

E. Law of Carriage

The Candidate has to demonstrate knowledge of:

- The common carrier and private carrier
- Functions and operations of transport documents such as Bills of Lading, Air Waybill
- Hague Visby Rules, Warsaw Convention, Hague Protocol, Guadalajara Convention, Rotterdam Rules
- Duties and liabilities of carriers
- Knowledge on pursuing claims

The Candidate should be able to:

- Distinguish between a common carrier and private carrier and understand the legal implications on carriers
- Illustrate understanding on operations of Bill of Lading and other transport documents on the carriage of goods by sea
- Illustrate understanding on the operations of Air Waybill and other transport documents on the carriage of goods by air
- Examine the background and legal implications on the Hague Visby Rules (HVR) under the context of carriage of goods by sea
- Examine the background and legal implications in the Warsaw Convention, Hague Protocol and Guadalajara Convention under the context of carriage of goods by air
- Examine the background and legal implications in the Rotterdam Rules that are governing the rights and obligations of shippers, carriers and consignees under a contract for door-to-door shipments that involve international sea transport
- Know how to protect the carrier's legal position by the defences available under HVR and observe the importance of the time limit under HVR
- Interpret the liability of a carrier for loss of or damage to cargo
- Know how the carrier's liability can be protected and how to determine the limit of liability

F. Arbitration

The Candidate has to demonstrate knowledge of:

- Meaning of arbitration, mediation and negotiation
- Types of arbitration
- Arbitration agreement

- Arbitral tribunal – the appointment, removal and jurisdiction of the arbitrator
- The arbitral process and power of the arbitrators
- The award and the enforcement

The Candidate should be able to:

- State the differences between the various types of ADR and the advantages and disadvantages of arbitration
- Explain the meaning and the differences between international and domestic arbitration and ad hoc and institutional arbitration
- Understand the importance of arbitration agreements and what essentials are contained therein, such as jurisdiction and number of arbitrators
- Explain how an arbitral tribunal is formed and the provision in the legislation related to the appointment, removal and jurisdiction of the arbitrator
- State the fundamental principles of an arbitral process and the powers of arbitrators
- Know what an award is and recourse against the award, and the application of the New York Convention
- Understand the application and requirements under the Arbitration Ordinance 1996 in Hong Kong

G. Insurance

The Candidate has to demonstrate knowledge of the:

- Parties involved
- Types of insurance documents
- Meaning of contract of indemnity
- Meaning of utmost good faith
- Meaning of disclosure by the assured
- Meaning of insurable interest
- Claims procedures and documents needed

The Candidate should be able to:

- Identify the parties involved in an insurance arrangement
- Explain different types of insurance documents and their functions
- Understand the principle of indemnity
- Understand that a contract for cargo or passenger insurance as a contract is based upon the utmost good faith and the legal consequences of not complying with such duty
- Explain the disclosure duty of the assured
- Explain the meaning of insurable interest and the particular moment that an assured must have an insurable interest
- Distinguish different types of insurance products and the coverage, and explain the expected perils of either freight or passenger transport
- Identify the documents needed in submitting a claim

Key Knowledge Areas

A. Legal Systems

Key Knowledge Areas	Coverage
Legal systems	• Categories of law • Court systems • Sources of law such as precedents, customs, legislation etc. • By-laws
Legislative procedures	• Bill drafting, bills committee, readings and publication • Amendment
International conventions	• International conventions related to transport and logistics operations, such as: Hague Rules, Hague-Visby Rules; Hamburg Rules; Warsaw Convention 1929; Hague Protocol 1955 etc.
Ordinances and regulations	• Ordinances and regulations in Hong Kong relevant to the following areas: o International trade o Maritime and shipping o Land transport o Air transport

B. Law of Contract

Key Knowledge Areas	Coverage
Essential elements	• Offer and acceptance • Legal intention • Consideration
Terms of contract	• Distinction between terms and misrepresentation • Express and implied terms • Conditions and warranties • Intermediate or innominate terms • Exclusion clauses
Privity of contract	• Meaning of the doctrine of privity of contract • Exceptions to the rule
Vitiating factors	• Definition, form and remedies of misrepresentation • Meaning and types of mistakes • Definition and consequences of duress and undue influence • Incapacity – minors, corporations, persons of unsound mind etc • Illegality-breaking the law and breaches of public morality
Discharge of a contract	• General rule of performance • Discharge by agreement – mutual or unilateral • Frustration – meaning, limitations and effects on the doctrine of frustration

	• Breach – anticipatory breach
Remedies	• Common law remedies – damages • Remoteness of damages, causation and types of damages recoverable • Equitable remedies-specific performance and injunction
Application	• Identify legal principles to analyse cases related to sale of goods, contract of carriage or related to transport and logistics operations

C. Law of Negligence

Key Knowledge Areas	**Coverage**
Duty of care	• Neighbour principle – Donoghue vs. Stevenson (1932) • For economic loss – Smith vs. Bush (1990) • Types of economic loss • Negligence misrepresentation – Caparo Industries vs. Dickman (1990)
Breach of duty	• Reasonable man test / how a reasonable man would act • Standard of care • Proof on balance of probabilities
Causation and remoteness	• "but for" test – Cork vs. Kirby Maclean (1952), Barnett vs. Chelsea and Kensington (1969) • Proof of causation • Intentional damage • Unintentional damage – reasonable foreseeable test for remoteness • Intervening act (novus actus interventions)
Defence	• General rule and meaning • S21 Law Amendment and Reform (Consolidation) Ordnance (Cap 23) • Consent – Slater vs. Clay Cross (1956) • Limitation – Control of Exemption Clauses Ordinance (Cap 71)

D. Law of Agency

Key Knowledge Areas	**Coverage**
The general nature of agency	• Concept of agent • Principal-agent relationship • Classes of agents • Types of authorities
Appointment of agents and formation of agency	• Appointment • Estoppel • Ratification • Necessity
Authority, rights and duty of an agent	• Authority of an agent • Rights of an agent such as remuneration,

	compensation and indemnity • Duties of an agent such as obeying of instruction, communication etc. • Applications
Liabilities for unauthorised acts	• Agent to third party • Principal to agent • Agent to principal
Termination of agency	• Discharge of contractual obligations • Renouncing the business of agency • Operation of law

E. Law of Carriage

Key Knowledge Areas	**Coverage**
Types of carriers	• Common carriers • Private carriers
Functions and operations of transport documents	• Functions of Bill of Lading • Functions of Air Waybill • Operations of Bill of Lading and Air Waybill • Absence, irregularity or loss of Air Waybill • Carrier's obligations under the implied terms in common law
International conventions and their implications on carriage of goods by various modes	• Carriage of Goods by Sea Act 1971 (COGSA 1971) • Hague Rules, Hague-Visby Rules (HVR) and Hamburg Rules • Applications of HVR: "voyage", "documents" and "goods" • Warsaw Convention 1929 • Hague Protocol 1955 (the amended Convention) • Guadalajara Convention 1961 • Rotterdam Rules
Duties and liabilities of carriers	• Scope, duties and liabilities under the international conventions adopted • Duties of carrier, such as seaworthiness; handling cargo properly and carefully; issue of Bills of Lading • Defences of carrier o All necessary measures o Contributory negligence • Limitation of liability
Pursuing claims	• Time limit in pursuing claims • Importance of time limit • Determination of liability limit • Reduction of limitation of liability • Wilful misconduct

F. Arbitration

Key Knowledge Areas	Coverage
Arbitration, mediation and negotiation	• Types of alternative dispute resolution, advantages and disadvantages of each type
Types of arbitration	• Definition of international and domestic arbitration • Institutional and ad hoc arbitration –advantages and disadvantages • Document only arbitration • Instant arbitration
Arbitration agreement	• When to conclude an arbitration agreement • Arbitration agreement in writing • Jurisdiction and seal of arbitration
Arbitral tribunal	• Appointment, removal and jurisdiction of arbitrators • Responsibilities of an arbitral tribunal • Number of arbitrators – umpires • Role of HKIAC
Arbitral process and powers of the arbitrators	• Procedures to be adopted • Domestic Arbitration Rule of HKIAC and UNCITRAL Model Arbitration Rules • Provisions in HKAO 1996 related to the powers of the court and arbitral tribunal • Costs in arbitration – cost of reference and cost of the parties
The award and the enforcement	• Types of award-interim and final • Provision in HKAO 1996 • Is arbitration appealable as of right • Recourse of action • Grounds for setting aside the award • Nema Guidelines • New York Convention

G. Insurance

Key Knowledge Areas	Coverage
Parties involved	• The roles played by the assured, insurance broker, insurance agent and underwriter • Interests of various parties
Contract indemnity	• Concept on contract indemnity • Castellain v Preston [1883]
Utmost good faith	• Concept on utmost good faith and its importance • Meaning of "uberrimae fidei" • Consequence of non-compliance
Disclosure by assured	• Concept on disclosure by assured • Meaning of material circumstances • Circumstances that need not be disclosed in the absence of an inquiry

	• S20 Marine Insurance Ordinance • Consequence of non-compliance
Insurable interest	• Concept on insurable interest, gaming or wagering contract • S5 Marine Insurance Ordinance • The moment that an assured must have an insurable interest • S6 Marine Insurance Ordinance • Consequence of no insurable interest – S75 (2) Marine Insurance Ordinance
Insurance product and coverage	• Various types of insurance • Risks coverage on standard insurance products
Claims procedures and document	• Procedures on claims • Documents needed to substantiate a claim • Time bars • Conclude a claim

Core Reading

Felix W H Chan, Jimmy J M Ng, and Sik Kwan Tai. (2015). *Shipping and Logistics Law: Principles and Practice in Hong Kong*, 2nd ed. Hong Kong University Press, Hong Kong.

Stott, V. (2019). *An Introduction to Hong Kong Business Law*, 5th ed. Prentice Hall, Hong Kong.

References

Hoeks, M. (2010). *Multimodal Transport Law: The Law Applicable to Multimodal Contract for the Carriage of Goods*. Kluwer Law International.

Lo, S.H.C., Cheng, K.K. and Chui, W.H. (2019). *Hong Kong Legal System,* 2nd ed. Cambridge University Press.

Rogers, A., Chuah, J., Dockray, M. (2020). *Cases and Materials on the Carriage of Goods by Sea*. 5th ed. Routledge.

Soyer, B. and Tettenborn, A. (2014). *Carriage of Goods by Sea, Land and Air: Uni-modal and Multi-modal Transport in the 21st Century*. 1st ed. Routledge.

Wilson, J.F. (2010). *Carriage of Goods by Sea*. Pearson, UK.

Hong Kong Legislations
Carriage of Goods by Sea Ordinance (Cap 462)
Import and Export Ordinance (Cap. 60)
Limitation Ordinance (Cap. 347)
Sale of Goods Ordinance (Cap. 26)
Unconscionable Contracts Ordinance (Cap. 458)

Advanced Level

Transport Management Stream

AL 2: Transport Systems and Management

Synopsis

This subject presents a fundamental understanding of the principles of operations systems and management, as applied to passenger transport. The emphasis is on appraising how operators can use these principles in their own workplace and to make comparisons with other transport undertakings.

It covers aspects of similarities and differences between different modes of transport, and between passenger and freight undertakings. The subject also requires a sound understanding of the management theories and processes associated with the formulation of urban transport policy and planning.

Outline Subject Content

A. Transport Systems
B. Transport Modes and Operational Characteristics
C. Transport Management
D. International and Local Regulatory Bodies

Standard of Knowledge and Competence

A. Transport Systems

The Candidate has to demonstrate the knowledge of:

- The recent concepts in transport systems
- The basic components in transport systems
- Interrelationships between various components
- Location of transport modes, connecting links and network structure
- The criteria for evaluating transport systems
- The role of humans in a transport system and their interactions
- Characteristics of passenger transport
- Products to be provided by suppliers

The Candidate should be able to:

- Use the system and component concepts to analyse transport issues
- Identify problems on various basic components of transport
- Examine various activities in the system processes

- Analyse transport systems and traffic problems in terms of points, nodes, linkage and network
- Evaluate the strengths and weaknesses of a transport system
- Discuss the interface between human and transport systems
- Illustrate, with examples, the characteristics of passenger transport operations
- Identify various types of services to be provided by suppliers

B. Transport Modes and Operational Characteristics

The Candidate has to demonstrate the knowledge of:

- Operations of various modes of transport
- Operational characteristics of various modes of transport
- Operational system of intermodal coordination
- Passenger demand and satisfaction
- Safety and security in passenger transport operations

The Candidate should be able to:

- Identify the strengths and weaknesses of various modes of transport
- Use the framework to select suitable modes of transport for people or goods transport
- Evaluate how the characteristics may affect the choice of users
- Develop methods to assess passenger demand and measure passenger satisfaction
- Explain the need for enhancing security, especially in international services

C. Transport Management

The Candidate has to demonstrate the knowledge of:

- Management functions related to transport systems
- Functions of transport management
- Use of intelligent transport systems in transport management
- Aspects and techniques on transport management measures

The Candidate should be able to:

- Apply management concepts to transport management issues
- Identify the specific functions of transport management
- Illustrate the importance of transport management in various aspects
- Identify various types of intelligent transport measures and discuss the applications of the measures on transport management
- Examine the use and effectiveness of various transport management measures

D. International and Local Regulatory Bodies

The Candidate has to demonstrate the knowledge of the:

- Objectives of setting regulations for public and private transport
- Reasons for having government involvement
- Legal framework on regulating passenger transport
- Functions, aims and activities of various regulatory bodies in transport sectors

The Candidate should be able to:

- Discuss the reasons for setting regulations
- Describe the framework for regulating transport in various levels
- Evaluate the effectiveness of the regulations on transport
- Identify the forms of regulating regimes
- Examine the role of the regulatory bodies on transport

Key Knowledge Areas

A. Transport Systems

Key Knowledge Areas	Coverage

Transport systems	• Definitions
	• Basic components
	  o Vehicles
	  o Ways
	  o Terminals
	  o Unit of Propulsion
	• Routing and scheduling
	• Interrelationship among components

Network analysis	• Location of transport facilities • Formation of network • Links and nodes • Traffic flow of network • Minimum path analysis
Passenger transport services	• Characteristics of transport operations • Structure of the passenger transport industry • Various types of services to be provided by suppliers

Evaluation criteria for transport system	• Criteria on evaluating impacts
	  o Energy consumption
	  o Air quality and noise pollution
	  o Equity
	  o Safety
	  o Congestion
	  o Land Use Impact
	• Key Evaluation Criteria
	  o Private and social costs
	  o Economic and financial costs
	• The Success Criteria
	  o Reliability
	  o Speed
	  o Convenience
	  o Personal security
	  o Comfort
	  o Consumer freedom
	  o Privacy

Human interaction with transport systems	• User impacts:
	  o Travel time
	  o Safety
	  o Comfort and convenience
	• Non-user impacts:
	  o Environmental concern
	  o Property value
	  o Land use and urban development
	  o Regional development
	  o Economic activities
	  o Social development

B. Transport Modes and Operational Characteristics

Key Knowledge Areas	**Coverage**
Modes of transport	• Various modes • Ways of various modes: Air, Sea and Land • Different modal characteristics • Inter-Modal Coordination (IMCP)
Operational characteristics	• Speed • Distance • Rate of Flow • Density • Capacity • Operator Cost • Level of Service • Comfortability
Intermodal operations	• Use of the ways, rights of traffic, unit of carriage, containers and unit load devices, loading and unloading devices, terminals and fuels
Passenger demand and satisfaction	• Factors affecting demand of transport • Fares, quantity demanded and factors affecting demand and demand elasticity • Factors affecting passengers' satisfaction • Ways of measuring passengers' satisfaction • Mechanism on regulating quality of passenger transport
Safety and security	• Importance of safety and measures on enhancing the safety of passengers • Arguments on enhancing passenger security • Security measures on international passenger services

C. Transport Management

Key Knowledge Areas	**Coverage**
Management functions and policy formation	• Policy formulation process • Implementation procedures • Functions of management: o Planning

	○ Controlling ○ Leading and directing ○ Evaluating
Functions of transport management	• Orderly and safe operation of the transport systems • Increasing the capacity of the transport systems for people and goods • Improvement of the quality of transport systems • Full or optimal utilisation of existing facilities
Intelligent Transport System (ITS)	• Elements of ITS • Objectives of using ITS • Effectiveness of using ITS • Global Positioning System and Geographic Information System • Remoting sensing and RFID • Use of information system and telecommunication on traffic management, emergency management, public transport and public transport enterprises
Transport management measures	• Demand side: ○ Land use planning and zoning ○ Communication substitutes ○ Traveller information services ○ Economic measures ○ Administrative measures • Supply-Side ➢ Road traffic operation ➢ Preferential treatment ➢ Public transport operations

D. International and Local Regulatory Bodies

Key Knowledge Areas	**Coverage**
Reasons for regulation	• Fundamental problems with the market mechanism: ○ Externality Public goods ○ Social costs ○ Indivisibility • Government and market forces: ○ Monopolistic market structure ○ Economies of scale ○ Equity issues • Some non-market considerations: ○ Safety standards ○ Standards of operating efficiency ○ Strategic military factors
Forms of regulating	• State ownership • Licensing or legal control • Price control • Quantity control

	• Profit control
Regulations	• International framework on regulating transport industry • Government control on fares, quality of services, safety, pollution and sustainability • Local regulations on road traffic, public transport and equal opportunities • By-laws
Regulating bodies	• International and local regulatory bodies of : o Road transport o Air transport o Maritime transport

Core Reading

Tolley, R. and Turton, B.J. (2014). *Transport Systems, Policy and Planning: A Geographical Approach*. Routledge, London.

White, P.R. (2008). *Public Transport: Its Planning, Management and Operation*. Routledge, London.

References

Perallo, A., Hernandez-Jayo, U., Enrique, O. and Garcia-Zuazola, I.J. (2014). *Intelligent Transport Systems: Technologies and Applications*. Wiley, US.

Sinha, K.C. and Labi, S. (2007). *Transportation Decision making: Principles of Project Evaluation and Programming*. Wiley, US.

Advanced Level

Transport Management Stream

AL 3: Sustainable Transport

Synopsis

This subject presents the fundamentals of sustainable transport, which is an important area in the study of sustainable development. Sustainable transport concerns the interrelations between social, economic, and environmental issues in current and future transport systems.

This subject covers the various aspects of sustainable transport, including the engagement process of stakeholders in the planning and development of a transport system; the influence of technology on transport, road safety, fuel consumption and subsequent emissions and noise pollution; environmentally friendly vehicles and fuels; and the analytical ways of evaluating and regulating transport systems.

Outline Subject Content

A. Understanding Sustainability

B. Social Sustainability in Transport
1. Governance and policy
2. Engagement processes of stakeholders
3. Influence of technology

C. Economic Sustainability in Transport
1. Costs of transport
2. Demand for transport
3. Transport infrastructure financing and evaluation
4. Regulating the transport system through pricing/charging

D. Environmental Sustainability in Transport
1. Air pollution
2. Other environmental issues
3. Assessment of environmental impact
4. Fuels and cleaner vehicles

Standards of Knowledge and Competence

A. Understanding Sustainability

The Candidate has to demonstrate the knowledge of the:
- Definition of sustainable development

- Definition of social sustainability
- Definition of economic sustainability
- Definition of environmental sustainability
- Definition of sustainable transport

The Candidate should be able to:

- Define sustainable development and know that it is composed of three dimensions: social, economic and environmental
- Explore the factors that affect social sustainability
- Understand the important concepts in defining and evaluating economic sustainability
- Explore the factors that affect environmental sustainability
- State the nature of a transport system
- Define the criteria of a sustainable transport system
- Define the different indicators that are used to measure or quantify the sustainability of a transport system

B. Social Sustainability in Transport

1. Governance and policy

The Candidate has to demonstrate the knowledge of the:

- Global perspectives on public policy
- Local perspectives on public policy
- Barriers to policy implementation
- Different political theories that are applied to transport

The Candidate should be able to:

- State the tenets of the 1997 Kyoto Protocol
- Identify the barriers to the achievement of a global dimension for sustainable transport
- Understand the role of technology, economics, and land-use development policies
- Examine the needs of special groups such as the disabled, elderly, lower income class, students and women
- Identify and understand the different barriers to policy implementation
- Define the underlying principles, pros and cons of the political theories that are applied to transport

2. Engagement processes of stakeholders

The Candidate has to demonstrate the knowledge of the:

- Roles and values of transport services providers
- Participation of research and development groups
- Emerging of environmental pressure groups
- Special transport needs

The Candidate should be able to:

- Give the definition, aim, role, and influence of transport services providers on transport systems
- Illustrate the influence of research and development groups on transport

systems
- Examine the influence of environmental and other pressure groups on transport systems
- Discuss the issues involved in fulfilling the transport needs of special groups

3. Influence of technology

The Candidate has to demonstrate the knowledge of the:
- Relationship between technology and transport
- Nature of an intelligent transport system as a technology for the improvement of transport systems
- Limitations of technology

The Candidate should be able to:
- State the influence of technology on emissions, resource consumption, and travel behaviour
- Identify the different areas of technology application in intelligent transport systems
- Identify different enabling technologies for intelligent transport systems
- State the effect of intelligent transport systems on production, working, living, and traveling
- State the limitations of the technology
- Understand the efficient use of road spaces through advance technology applications

C. Economic Sustainability in Transport

1. Costs of transport

The Candidate has to demonstrate the knowledge of:
- Direct costs of transport
- External costs of transport
- Revealed and stated preferences
- Travel cost methods for evaluation

The Candidate should be able to:
- Determine the differences between short- and long-run costs
- Compare and contrast fixed and variable costs
- Understand average, marginal, and generalised costs
- Explain the effect of scale in estimating the costs of vehicle size and fleet size
- Categorise costs into common, joint, and specific costs according to the parties responsible for the costs
- Understand and use revealed preference, stated preference, and travel-cost methods for transport evaluation
- Define the economic cost of traffic congestion

2. Demand for transport

The Candidate has to demonstrate the knowledge of:
- The effect of planning and land use development on travel demand
- The effect of user behaviour on travel demand
- Methods for the measurement of demand elasticity

- The interrelationship between the cost of and demand for transport

The Candidate should be able to:

- Understand the influence of the land use pattern, price of transport services, the quality of services, income level, and user behaviour on demand for transport, and the relationship with sustainable transport
- Point out the difficulties in measuring demand elasticity
- State the factors, such as journey time and frequency of transport, that affect demand elasticity
- Explain the existence of an equilibrium price from the demand and supply curves of a transport system
- Extract information, such as consumer's surplus and total system cost, from the plot of the demand and supply curves of a transport system

3. Transport infrastructure financing and evaluation

The Candidate has to demonstrate the knowledge of:

- Project financing
- Cost-benefit analysis

The Candidate should be able to:

- Describe private sector financing, public sector financing, and public-private partnership financing arrangements
- Perform a cost-benefit analysis of a simple project
- State the strengths and weaknesses of cost-benefit analysis as a project evaluation tool

4. Regulating transport systems through pricing

The Candidate has to demonstrate the knowledge of:

- How to price or charge a transport service
- The nature of externalities-based charging
- The barriers to pricing and charging

The Candidate should be able to:

- Understand the principle of pricing transport services
- State the different objectives, such as profit and welfare maximisation, of transport service pricing
- Use the marginal cost pricing approach to price a transport service
- Point out the difficulties of pricing a transport service
- Understand the principle of charging
- Know the different types of externalities-based charging
- State the different objectives of congestion charging
- Design an optimal congestion charge using demand and supply curves based on the marginal cost approach
- State the different environmental pricing methods
- Understand the different barriers to charging in a transport system

D. Environmental Sustainability in Transport

1. Air pollution

The Candidate has to demonstrate the knowledge of:

- The sources of emission
- The different types of air pollutants and their origins
- The consequences of air pollution to human health

The Candidate should be able to:

- Identify different on-road and off-road emission sources of air pollutants
- Identify the origins and consequences of air pollutants
- Describe the different consequences of air pollution and the specific causes of these consequences
- Identify measures (either traffic management or application of technology) to reduce road emissions

2. Other environmental issues

The Candidate has to demonstrate the knowledge of:

- Definition of traffic noise and sources of traffic noise
- Consequences of traffic noise to human health
- More emphasis on pedestrian needs
- Effect of transport on amenities and severance

The Candidate should be able to:

- Define sources of noise, such as road traffic noise, railway noise, and aircraft noise
- State the scale and instruments that are used in the assessment of transport noise
- Understand the effect of noise on the community health, and sleep patterns
- Understand the principles of different types of noise abatement measures such as noise barriers, low noise road surfacing, etc.
- State the cause of and mitigation measures for road traffic noise that is caused by traffic like braking, surface water, steep gradient, etc.
- Understand the principles of risk assessments, such as quantitative risk assessments, "as low as reasonably practical' (ALARP) risk, and tolerable and negligible risk
- Value the cost of risk
- Understand the walking and park-and-ride are other kinds of sustainable form of transport and how to promote walking and park-and-ride in local
- Understand the pedestrian schemes
- Describe a method for amenity and severance assessment
- Describe the impact of transport amenities and severance and measures for their mitigation

3. Assessment of environmental impact

The Candidate has to demonstrate the knowledge of:

- Principles and processes of Environmental Impacts Assessment (EIA)
- Use, scope and objectives of EIA
- Evaluation techniques for the assessment of environment impact

- Limitations of EIA

The Candidate should be able to:

- Explain and describe the principles and the processes of EIA (the new EIAO and TM which come into effect in 2023)
- Examine the use of EIA on transport issues
- Understand the principle and usage of different evaluation techniques (avoided costs, contingent valuation, and travel cost model)
- Understand the limitations of EIA in the project implementation

4. Fuels and cleaner vehicles

The Candidate has to demonstrate the knowledge of:

- The commonly used fuels and their consumption and impact on the environment
- Alternative fuels and their prospects
- Cleaner vehicles and their advantages

The Candidate should be able to:

- State the origins, usage, and impact of gasoline and diesel on the environment
- Identify different kinds of alternative fuels (like LPG and electric) and describe their future prospects and limitations in Hong Kong
- Compare different kinds of cleaner vehicles
- State the advantages of cleaner vehicles

Key Knowledge Areas

A. Understanding Sustainability

Key Knowledge Areas	**Coverage**
Sustainable development	• Concept of sustainable development • The three different aspects: social, economic and environmental
Social sustainability	• Cohesion of community • Laws and civil rights • Moral traditions and values • Education and the health and nutrition of the individual • The sustainable development ethics • Equity and equal opportunity
Economic sustainability	• Economic capital • Concepts of social costs, total costs, and beneficiaries • Concepts of evaluating environmental externalities • Sustainability as an economic investment
Environmental sustainability	• Natural capital • Sources of raw materials • Understanding of renewable and non-renewable resources • Disposal of human waste

Sustainable transport	• Nature of a transport system • Criteria of sustainable transport • Sustainability indicators

B. Social Sustainability in Transport

1. Governance and policy

Key Knowledge Areas	Coverage
Global perspectives	• Global organisations and conventions including Framework Convention on Climate Change, Convention on Bio-diversity and 1997 Kyoto Protocol to the United Nations Framework on Climate Change • Role of transport in sustainable development • Barriers to achieving sustainable transport
National and local perspectives	• Role of technology policy • Role of economic and fiscal policy • Role of physical land-use and development policy • Equity and equal opportunity • Transport needs of the disabled, elderly, lower income class, school children and women
Barriers	• Resources barriers • Institutional and policy barriers • Social and cultural barriers • Financial constraints • Legal barriers • Side effects • Other (physical) barriers
Governing regimes	• Nationalisation of transport • Privatisation of transport • Regulated and deregulated markets

2. Engagement processes of stakeholders

Key Knowledge Areas	Coverage
Transport service providers	• Definition • Aim and role of the sector • Engagement channels and impacts
Research and development groups	• Definition • Aim and role of the sector • Engagement channels and impacts
Environmental and other pressure groups	• Definition • Aim and role of the sector • Engagement channels and impacts

3. Influence of technology

Key Knowledge Areas	Coverage
Technology and transport	• Influence of technology on transport • Influence of technology on environment

Intelligent Transport System (ITS)	• Different areas of an ITS • ITS-enabling technologies • Effect of an ITS
Limitations of technology	• Less socialising society • Disparity between rich and poor • Desirability of having a pollution-free vehicle

C. Economic Sustainability in Transport

1. Costs of transport

Key Knowledge Areas	**Coverage**
Direct costs	• Short-run vs. long-term cost • Fixed and variable cost • Average and marginal cost • The effect of scale • Responsibility for cost • Generalised cost
External costs	• Pecuniary and technological externalities • Evaluation of externalities • Congestion and pollution

2. Demand for transport

Key Knowledge Areas	**Coverage**
Factors affecting travel demand	• Land use development • Price of transport services • Quality of services • Income levels • Travel behaviour
Measures of demand elasticity	• Difficulties in measuring demand elasticity • Differences in the elasticity of different transport services • Factors affecting the elasticity of demand
Interrelationship between the cost of and demand for transport	• Introduction of demand and supply curves for transport systems • Existence of an equilibrium price • Extracting information from demand and supply curves

3. Transport infrastructure financing and evaluation

Key Knowledge Areas	**Coverage**
Types of project financing	• Private sector financing • Public sector financing • Public-private partnership
Cost-Benefit Analysis (CBA)	• Principles and formulas • Evaluation of the opportunity cost of capital • Strengths of cost-benefit analysis • Weaknesses of cost-benefit analysis

4. Regulating transport systems through pricing

Key Knowledge Areas	Coverage
Pricing transport services	• Principles of transport service pricing • Different objectives of pricing • Marginal cost pricing • Difficulties of pricing
Externalities-based charging	• Principles of charging • Congestion charging • Time-varying charging tolls • Pollution charging
Barriers to charging	• Fairness • Technological barriers • Public acceptance • Interests of service providers • Cooperation between service providers

D. Environmental Sustainability in Transport

1. Air pollution

Key Knowledge Areas	Coverage
Sources of emission	• On-road sources • Off-road sources
Air pollutants and their origins	• Carbon dioxide • Carbon monoxide • Sulphur dioxide • Particulate matters • Ozone • Nitrogen dioxide • Other toxins
Consequences of air pollution	• Reduction in visibility • Health effect • Crop loss • Material damage • Forest damage • Climate change (global warming)

2. Other environmental issues

Key Knowledge Areas	Coverage
Noise	• Sources of noise • Assessment of transport noise • Effect of noise on humans • Noise abatement • Mitigation measures
Consequence of noise pollution	• Different kinds of risk • Risk assessment • Cost of risk • Health Effect

Amenity and severance	• Definition of amenity and severance • Methods for assessing amenities and severance • Impact of transport on amenities and severance • Measures to improve amenities and reduce severance (policies and planning)

3. Evaluation of environmental impact

Key Knowledge Areas	**Coverage**
Environmental Impact Assessment (EIA)	• Principles of EIA • Scope and objectives • Processes and procedures • Major environmental factors • Limitations of EIA
Evaluation techniques	• Change in customer and producer surplus • Avoided costs • Averting behaviour • Hedonic price method • Contingent valuation • Choice experiments • Travel cost models

4. Fuels and cleaner vehicles

Key Knowledge Areas	**Coverage**
Commonly used fuels and their consumption and impacts on the environment	• Gasoline • Diesel • Pollutants and environmental impacts
Alternative fuels and their prospects	• Compressed natural gas • Liquefied petroleum gas • Methanol • Ethanol • Biodiesel • Hydrogen • Electricity • Methane
Cleaner vehicles and their advantages over vehicles with internal combustion engines	• The internal combustion engine • Battery electric vehicles • Hybrid electric vehicles • Fuel cell vehicles
Reducing emission	• Measures for public transport • Measures for private transport • Measures for freight transport

Core Reading

Gerike, R. and Hulsmann, F. (2013). *Strategies for Sustainable Mobilities: Opportunities and Challenges*. Ashagte Publishing, US.

Tumlin, J. (2012). *Sustainable Transportation Planning: Tools for Creating Vibrant, Healthy*

and Resilient Communities. Wiley, US.

Button, K. (2010). *Transport Economics*, 3rd ed. Edward Elgar Publishing Company, England, Vermont.

References

Banister, D. (2005). *Unsustainable Transport*. Routledge, London.

Hensher, D.A. and Button, K.J. (2003). *Handbook of Transport and the Environment*. Elsevier Group Publishing, Kidlington, Oxford, UK.

Pope, J.P. (2005). *Transport Economics*. Vineyard Publishing, Australia.

Transport Department (1999), *Third Comprehensive Transport Study*

Planning Department (2002), *Study on Planning for Pedestrians, Stage 1 Public Consultation, Hong Kong*: HKSAR Government.

Transport Department, *Hong Kong Moving Ahead: A transport strategy for the future*

https://www.smartcity.gov.hk/vision-and-mission.html

Advanced Level

Transport Management Stream

AL 4: Transport Policy and Planning

Synopsis

This subject covers the key aspects of transport policy and planning. It focuses on the role of the government in shaping transport in a society. The government organisation and other related organisation in relation to transport strategies and policy formulation and implementation are first covered. Then, the transport planning process and the four-stage transport planning model are introduced. Lastly, the role of transport in influencing development patterns and the interrelationships between transport infrastructure, land-use and travel behaviour are analysed. Local applications would be examined whenever possible.

Outline Subject Content

A. Government and Politics in Relation to Transport
B. Transport Strategy and Policy Formation and Implementation
C. Transport Planning
D. Transport and Development Patterns
E. Transport, Land-Use and Travel Behaviour

Standards of Knowledge and Competence

A. Government and Politics in Relation to Transport

The Candidate has to demonstrate the knowledge of:

- The government organisation and other related organisations in relation to transport
- The influence of politics on transport
- The importance of transport in public budgetary expenditure
- Alternative ways of funding transport
- Regulation on public transport

The Candidate should be able to:

- Identify the transport-related government bodies and organisations
- Distinguish between central and local authorities
- Distinguish between statutory and non-statutory bodies
- Describe the importance of politics, consultation and public participation
- Highlight the significance of transport in public budgetary expenditure
- Know the different funding methods for developing and supporting transport
- Evaluate the regulatory impacts on various public transport such as fare determination, quality and environmental impacts

B. Transport Strategy and Policy Formation and Implementation

The Candidate has to demonstrate the knowledge of:

- The top-down and bottom-up approaches
- Concepts of public governance
- Common transport problems in urban, regional and cross-boundary contexts
- Common measures used to tackle transport problems
- Objectives of transport policy

The Candidate should be able to:

- Describe the policy formation process for transport
- Identify the key issues and constraints
- Outline the common transport problems
- Describe the different measures and approaches in alleviating transport problems
- Describe and understand the major transport policy objectives

C. Transport Planning

The Candidate has to demonstrate the knowledge of:

- Rationales for transport planning
- Transport planning process
- Conventional four-stage transport planning model
- Key advantages and limitations of the four-stage transport planning model

The Candidate should be able to:

- Explain the reasons for transport planning
- Identify the key steps in the transport planning process
- Describe the traditional four-stage transport planning model
- Outline the major data requirements for the traditional four-stage transport planning model
- Outline the major methods used in the traditional four-stage transport planning model
- Give a critical appraisal of the traditional four-stage transport planning model
- Describe the latest developments in improving and supplementing the traditional four-stage transport planning model

D. Transport and Development Patterns

The Candidate has to demonstrate the knowledge of:

- The nature of transport infrastructure as a form of social overhead capital
- Different impacts of transport on the economy
- Different impacts of transport on the spatial structure of a society
- Roles can transport policy play as a tool of development
- Considerations of road freight transport planning and movements of goods

The Candidate should be able to:

- Describe the nature of social overhead capital
- Understand the reasons for classifying transport as a type of social overhead capital
- Distinguish the generative, permissive and negative roles of transport

- Distinguish the spread, redistributive and backwash roles of transport
- Conduct a critical analysis of assigning transport a positive and active role in development policies
- Conduct a critical analysis of assigning transport a negative and passive role in development policies
- Analyse freight transport planning and its impacts on regional development

E. Transport, Land-use and Travel Behaviour

The Candidate has to demonstrate the knowledge of:

- Relationship between transport and land-use
- Concepts on accessibility and smart mobility
- Travel behaviour and trip planning
- Land-use patterns affecting people's travel behaviour
- Major trends and challenges associated with the changing land-use patterns in many developed cities
- Infrastructure planning and market intelligence

The Candidate should be able to:

- Describe the interrelationships between transport and land-use
- Understand the smart mobility such as underground parking
- Understand the concept and importance of accessibility for people such as barrier-free facilities (lifts, escalator link, covered walkway, etc.)
- Understand the needs for integrated transport and land use planning
- Identify the factors affecting journey planning such as distance, destination, travel time, waiting time
- Analyse the implications of different land uses on people's travel behaviour, including trip generation/distribution, modal choice, route choice, departure and arrival time, etc., and their activity patterns
- Analyse the implications of changing land-use patterns, for example, suburbanisation or spatial sprawl, on people's travel behaviour
- Conduct a critical review of the major transport trends and challenges associated with the above changing land-use patterns
- Examine the factors affecting infrastructure planning and evaluate transport infrastructure projects in various aspects

Key Knowledge Areas

A. Government and Politics in Relation to Transport

Key Knowledge Areas	Coverage
Government organisation and other related organisations	• Relevant Bureaus • Relevant Departments • Central and local authorities • Statutory and non-statutory bodies
Politics	• Political process • Public participation • Non-governmental organisation

	• Consultation/engagement and partnership
Public expenditure	• Government budgetary consideration • Funding methods • Economic returns vs. financial returns • Private and public partnership
Regulating public transport	• Reasons for regulating public transport • Policy and implementation framework • Fare determination on public transport • Political aspects • Acceptability and affordability • Degree of de-regulation

B. Transport Strategy and Policy Formation and Implementation

Key Knowledge Areas	**Coverage**
Policy formulation process	• Parties involved in the process • Bottom-up and top-down approaches • Consultation process • Public governance
Common transport problems	• Under-capacity, associated with traffic congestion, etc. • Over-capacity, associated with opportunity costs and waste of resources • Public transport problems, associated with subsidies, competition, needs of the transport disadvantaged, etc. • Private transport problems, associated with pollution, traffic congestion, different forms of pricing, parking problems, etc. • Transport safety
Common transport measures	• Infrastructure planning and implementation • Government regulations • Traffic management measures • Demand restraint
Objectives of transport policy	• Recent transport policy objectives • Relationship with the general government policy objectives • Interconnectivity with other policy objectives such as land use development, environmental protection, social welfare and tourism etc.

C. Transport Planning

Key Knowledge Areas	**Coverage**
Need for transport planning	• Reasons for transport planning • Aims and objectives of transport planning
The transport planning process	• Planning standards and guidelines • Public inquiry and consultation/engagement • Traffic demand forecasts

	• Project based planning • Monitoring • Various types of evaluation

The traditional four-stage transport planning model	• Major data requirements
	• Major ways of data acquisition
	• Major assumptions
	• Four-stage model
	  ○ Trip generation
	  ○ Trip distribution
	  ○ Trip modal split
	  ○ Trip assignment
	• Typical methodologies used at each stage
	• Some commonly-used software

Critical appraisal of the traditional four-stage transport planning model	• Key advantages • Major limitations • Latest developments, for example, the use of stated preference data

D. Transport and Development Patterns

Key Knowledge Areas	**Coverage**
Nature of transport infrastructure	• Definition of social overhead capital • Characteristics of transport infrastructure (public vs. private, productive vs. consumptive, economic vs. non-economic, fixed vs. footloose) • Social investment • Highways, rails, airports, ports, terminals, logistics parks, pipelines
Impacts of transport on the economy	• Generative role, with transport playing a catalytic role in development • Permissive role, with transport as a necessary but not sufficient condition for development • Negative role, with resources spent on transport seen as not yielding the best economic returns
Impacts of transport on the spatial structure of a society	• Spread effect, with transport opening up new and wider areas for development • Redistributive effect, with transport only changing the comparative advantages of different areas • Backwash effect, with transport leading to the polarisation of development in the most developed areas only
Transport policy prescriptions	• Positive and active roles, with new transport infrastructural development taking a leading role in creating and opening up development opportunities, and enhancing connectivity between development areas • Negative and passive roles, with new transport infrastructural development seen as causing further congestion problems and should only

	follow development • Factors affecting freight transport

E. Transport, Land-Use and Travel Behaviour

Key Knowledge Areas	Coverage
Transport and land use interactions	• Interactive process between land use and transport • Accessibility and mobility • Various scales of land use and transport interaction
Trip planning	• Factors affecting trip planning and use of modes • Distance of travel, waiting time, in-vehicle time, destination, trip purposes etc. • Revealed preference and utility maximisation
Infrastructure planning and evaluation	• Infrastructure and economic development • Aspects of evaluation – financial, economical, technical, environmental, political and social • Market intelligence and infrastructure planning
Land use and travel behaviour	• Types of land use and associated activities • Trip characteristics, including generation/distribution, time, duration, mode and route, associated with different activities • Major changes in land use in developed cities, including suburbanisation and spatial sprawl • The associated major trends and challenges, including more and longer trips • Travel and journey planning • Accessibility and travel behaviour

Core Reading

Button, K.J. and Hensher, D.A. (eds.) (2005). *Handbook of Transport Strategy, Policy and Institutions*. Emerald Group Publishing, Amsterdam.

Dimitriou, H.T. and Gakenheimer, R. (2012). *Urban Transport in the Developing World: A Handbook of Policy and Practices*. Edward Elgar Publishing, UK.

Hong Kong Moving Ahead: A transport strategy for the future, HKSAR

The Third Comprehensive Transport Study: Final Report, HKSAR

Public Transport Strategy Study June 2017, HKSAR

References

Banister, D. (2002). *Transport Planning*, 2nd ed. Routledge, London.

Nakagawa, D. and Matsunaka, R. (2006). *Transport Policy and Funding.* Emerald Group Publishing Limited, UK.

Traffic and Transport Consultancy Study on Cycling Networks and Parking Facilities in Existing New Towns in Hong Kong - Executive Summary, HKSAR

Toll Rationalisation Study of Three Road Harbour Crossings and Three Land Tunnels between Kowloon and Sha Tin - Feasibility Study : Final Report, HKSAR

The Second Parking Demand Study Final Report, HKSAR

Hong Kong Planning Standards and Guidelines, PlanD, HKSAR

Advanced Level

Logistics Management Stream

AL 5: Global Supply Chain Management

Synopsis

The subject covers the study of Supply Chain Management (SCM), an end-to-end process of freight movements. It encompasses the full scope of supply chain management with special focus on the global perspective, as per the title.

Candidates attempting this subject should have a fair knowledge of trade terms, international and domestic rules and regulations governing different transport modes, and the characteristics of transport systems. Candidates are expected to appreciate and understand the evolution of international trade, globalisation of the economy and trade flows, division of labour, inventory control, production and distribution centres, and the consumer markets. It is also expected that candidates have up-to-date knowledge about the industry; to adopt KPI measurement to check efficiency; and to apply modern technologies such as material/cargo handling automation information systems, bar codes, RFID and GPS from procurement process of raw materials and spare parts up to distribution of finished products to the markets and consumers.

Outline Subject Content

A. Transport and Supply Chain Management
B. Business Environment and Management of Global Supply Chain
C. Procurement, Warehousing, Inventory and Operations Management
D. Containerisation, Unit Loads and Intermodal Transport.
E. Globalisation of World Economy and Supply Chain Strategy
F. Alliance, Synergy and Integration of Global Supply Chain Operations
G. Technological Development in Supply Chain Management
H. Future Challenges and Issues

Standard of Knowledge and Competence

A. Transport and Supply Chain Management

The Candidate has to demonstrate the knowledge of:

- Definitions of supply chain and supply chain management
- Different flows in the supply chain
- The function of different transport modes related to freight transport
- Decision models for transport services and networks
- Lean and agile supply chains

The Candidate should be able to:

- Understand the concepts of the supply chain, supply chain management and the flows inside the supply chain
- Identify key elements for designing networks for the physical flow of goods
- Decide on the locations of transport hubs-and-spokes, warehouses and distribution centres, and service networks
- Discuss the concepts of lean and agile supply chains in response to customer needs

B. Business Environment and Management of Global Supply Chain

The Candidate has to demonstrate the knowledge of the:

- Organisation and behaviour of individuals and groups within an organisation; leadership, entrepreneurship and followers
- Interpretation of financial statements, budgeting, and investment project appraisal
- Trends in marketing channels, customer services, and transport and logistics development
- Trade terms and legal aspects related to the conduct of business and transport
- Aspects and recent developments in the international business environment
- Various external and internal impacts on the global logistics sector
- Various types of risk in supply chain operations
- Various related international organisations and conventions

The Candidate should be able to:

- Plan and manage an effective organisation
- Prepare a budget and use a financial statement as a tool to evaluate the financial performance of an investment
- Understand legal liability in relation to contract and transport
- Set strategies to meet sales/marketing needs and design campaigns to satisfy customers' requirements
- Examine the impacts of the changing business environment and propose recommendation to the Management
- Identify external and internal impacts on global logistics services providers
- Evaluate various types of risks on supply chain operations (customs regulations for example)
- State the sources of legislation and main legal requirements for operations
- Illustrate the role of various international organisation and conventions

C. Procurement, Warehousing, Inventory and Operations Management

The Candidate has to demonstrate the knowledge of:

- Sourcing models, best choice evaluation, and E-business in procurement
- Location of facilities, material flow processes and analyses, and material handling systems
- Principles of managing the production of goods and services
- Benchmarking performance: setting Key Performance Index (KPI)

The Candidate should be able to:

- Choose the sourcing channel: ownership and outsourcing to 3PL providers

- Examine the requirements of warehouse layout design and planning
- Apply principles and tools in managing both services and manufacturing
- Apply KPI to measure the customer satisfaction level and operation efficiency

D. Containerisation, Unit loads, and Intermodal Transport

The Candidate has to demonstrate the knowledge of:

- Intermodal transport systems: containerisation and unit loads
- Land-based support systems to backup containerisation
- Intermodality of containers and extension of cargo hinterland

The Candidate should be able to:

- Apply containerisation as a homogeneous unit of carriage and its intermodal characteristics to expand the cargo catchment area, i.e. the market
- Design a hub-and spoke plan to meet the sales and business strategy

E. Globalisation of World Economy and Supply Chain Strategy

The Candidate has to demonstrate the knowledge of:

- An understanding of the macro-economics – labour, output, money and foreign exchange market that are influenced by the major economies and markets
- Division of labour, world production centres and consumers' markets
- Specialisation in commercial activities.
- Emerging of Supply Chain Management (SCM), Third Party Logistics (3PL) providers and multi-national corporations

The Candidate should be able to:

- Decide the best combined modes and systems to suit the company's logistics requirements
- Discuss elements in designing global supply chain strategies
- Recognise the opportunities and challenges of the supply chain industry

F. Alliance, Synergy and Integration in Global Supply Chain Operations

The Candidate has to demonstrate knowledge of the:

- Emergence of shipping consortia and airlines alliances: the rationale of code-sharing and risk-sharing, and expanding market coverage
- Technology innovations in carriers (container liner shipping and also airlines): increase in both size and capacity, and also speed and efficiency, which require partnership
- Planning of carriers' hub and feeder ports (also airports and other modes), and 3PL's load centres and distribution centres

The Candidate should be able to:

- Plan logistics services based on available multi-modal services in the market
- Select load centres and distribution centres to best suit the market requirements

G. Technological Development in Supply Chain Management

The Candidate has to demonstrate the knowledge of:

- Availability of new technologies and automation systems in the logistics sector
- Automation – a trade-off with manual work. Efficiency vs. Cost. Adopting automation in conducting business and production.
- An understanding of new information technologies for building e-business models to achieve competitive advantage and creating an innovative supply chain.

The Candidate should be able to:

- Apply new technologies in daily business to best suit the requirements
- Observe technology innovations and to make changes
- Apply new technologies in e-business to achieve competitive advantage
- Discuss issues in e-commerce, m-commerce and business/artificial intelligence

H. Future Challenges and Issues

The Candidate has to demonstrate the knowledge of:

- The continuous changes of the world economy; mergers and acquisitions; and new technology developments

The Candidate should be able to:

- Examine the trend of development in Supply Chain Management
- Make adjustments or corrections to accommodate the changes in business
- Discuss the issues on Supply Chain Management in Mainland China, and other emerging economics

Key Knowledge Areas

A. Transport and Supply Chain Management

Key Knowledge Areas	Coverage

Supply Chain and supply chain management	• Concepts of the supply chain
	• Supply Chain Management
	• Flows in supply chains
	  ○ Physical goods flow
	  ○ Information flow
	  ○ Financial flow
	• Collaboration, competition and conflicts among firms

Lean and agile supply chain	• Lean and agile manufacturing • Responses to special requirements • Flexibility and adaptability
Multi-channel supply chain	• Functions and types of distribution channels • Characteristics of various types of distribution channels • Vertical and horizontal channels • Relationship among firms in a supply chain

Location and Network decisions	• Direct shipment • Milk runs • Distribution centres • Cross-docking • Centralised vs. decentralised facilities • Inventory aggregation • Temporal aggregation

B. Business Environment and Management of Global Supply Chain

Key Knowledge Areas	**Coverage**

International business environment: the concepts and organisation of international trade	• The concept and organisation of international trade
	  o Strategic trade theory, international trade policies
	  o Market access
	  o Multinational corporation: role and influence
	• External impacts
	  o International business strategies
	  o Environment appraisal
	  o Government and inter-government organisations
	• Internal impacts
	  o International business performance
	  o Supply chain strategies
	  o Factors: strategic, managerial, organisational and marketing

Management of organisations	• Organisation development • Functional aggregation • Collaborative relationships management • Developing trust • Finance and accounting • Strategic management – collaboration and integration
Potential risk inherent in the international supply chain	• Risks: operational, financial, political, economic, commercial • Risk management and reduction
National and international legislation	• Conventions related to international transport, Hague Rules, COGSA, and the Warsaw Convention etc. • Legal implications and liability as per Air Waybills and Bills of Lading • Insurance for transit goods and international transport
International organisations and business organisations	• Roles and functions of IMO, IATA, ICAO and other relevant organisations • Provisions of ATP, ADR and other relevant conventions • Structure and organisations of freight industries

	○ Characteristics of the international freight industry ○ Organisations of transport operations for hire and reward and own account ○ Access to market • Freight agents and subcontractors • Role of third party contractors in freight forwarding and groupage operations
Improving supply chain network design and management	• Reasons for improving supply chain networks • Process of re-evaluation • Network analysis • Internal audit • External factors and internal factors

C. Procurement, Warehousing, Inventory and Operations Management

Key Knowledge Areas	**Coverage**
Procurement process and planning Just-in-time, VMI and CMI	• Procurement perspectives • Procurement strategies • E-commerce • Just-in-Time • VMI, CMI and others
Warehouse management and planning	• Cargo and material handling and storage • Warehouse planning • Warehouse strategies and functionality • Warehouse operations
Operations management	• Inventory management • Transport management and scheduling • Packaging • Materials handling
Key performance indicators	• Measurement system objectives • Financial assessment • Measuring customer satisfaction rate • Benchmarking

D. Containerisation, Unit Loads and Intermodal Transport

Key Knowledge Areas	**Coverage**
Emergence of unit loads, containers and intermodal transport systems	• Palletisation, lift vans and unit loads • Cargo security and protection
Implication and issues related to intermodal transport systems	• Efficiency and re-handling reduction • System approach in conducting business • Cost and investment: systems vs. manual work
Planning of intermodal transport	• Interoperability on unit of carriage, facilities and equipment • Land-bridges and canals • New navigation and rail routes • Sea-air connection, and other transport modes

E. Globalisation of World Economy and Supply Chain Strategy

Key Knowledge Areas	Coverage
Globalisation and division of labour	• Global and Regional production centres and consumers' markets • Trade flow: raw materials and finished products • Shrinking world with technology innovations
Multi-national corporations and business strategy	• Cost awareness, emergence of new production centres • Outsourcing of procurement, shipping and distribution activities
Supply Chain Management (SCM) and Third Party Logistics providers	• Specialisation in logistics functions: emergence of SCM and 3PLs • Logistics function: a tool for sales and marketing • Global networks • Designing supply chain operations • Opportunities and challenges

F. Alliances, Synergy and Integration in Global Supply Chain Operations

Key Knowledge Areas	Coverage
Shipping consortia and airlines code-sharing	• Service frequency and networks, market coverage, and risk-sharing
Hub ports and feeder ports	• Increasing size in containerships and aircraft • Limitation of direct calls at transport hubs • Ports as transport hubs in supply chains • Extensive market coverage by feeder services, i.e. feeder vessels and land systems
Global supply chain management	• Distribution and consolidation centres • Changes in market trends: reduction of intermediate nodes; direct delivery to retail stalls and markets

G. Technological Development in Supply Chain Management

Key Knowledge Areas	Coverage
Information Networks	• Information system functionality • Enterprise Resources Planning (ERP) • Paperless work environment
Execution Systems	• Customer Relationship Management • Transport Management System • Warehouse Management System • Challenges in execution systems
Web-based technology	• Strategic collaboration • Round-the-clock operation • Market integration • Web-based EDI and the use of XML • Web-based service providers
Technology as a basic requirement for collaboration	• Trends of automatic ID for goods • Technology as a basic alliance requirement

	• Compatibility of technologies
	• Cases of
	  ○ RFID
	  ○ GPS
	• Competitive edge of various technologies
	• Inertia of traditional technology

E-business models	• Business features • System functionality and performance • Collaboration • Business role • Competing on global scale, design and quality, and business process management
E-commerce	• Digital markets and digital goods • Commerce operating model • Marketing transformation • Business to business • M-commerce • Issues in e-commerce
Business/Artificial intelligence	• Business intelligence • Artificial intelligence • Artificial intelligence techniques

H. Future challenges and issues

Key Knowledge Areas	**Coverage**
Future challenges	• Green distribution and environmental management system • Globalisation and world trade patterns • Technological advancement
Regional economic development	• Regional logistics hubs • Hub-and-spoke and supply chain strategies
Merger and acquisition in the transport and logistics industry	• Optimal scale and diseconomies of scale • Application of Game theory • Interdependence behaviour
Developments in China Mainland, and other emerging economies	• Time-definite vs. time critical logistics • Opportunities for cooperation and coordination between Mainland China and Hong Kong • Transport infrastructure, institutional arrangement and other considerations

Core Reading

Chopra, S. and Meindl, P. (2015). *Supply Chain Management: Strategy, Planning and Operation*, 6th ed. Prentice-Hall, New Jersey.

Christopher, M. (2011). *Logistics and Supply Chain Management*, 4th ed. Financial Times Press, US.

References

Benton, W.C. (2013). *Purchasing and Supply Chain Management*, 3rd ed. McGraw Hill, US.

Laudon, K.C. and Laudon, J.P. (2014). *Essentials of Managing Information Systems*, 11th ed. Prentice Hall, US.

Myerson, P. (2012). *Lean Supply Chain and Logistics Management*. McGraw Hill Professional, US.

Simchi-Levi, D., Simchi-Levi, E. and Kaminsky, P. (2007). *Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies*, 3rd ed. McGraw-Hill, Boston.

Advanced Level

Logistics Management Stream

AL 6: Logistics Management

Synopsis

Firms running businesses in the new millennium face a number of harsh competitive realities. Firstly, manufacturing a quality product is no longer sufficient by itself to engender customer loyalty. Companies have to consistently deliver a product when and where their customers demand it, at a reasonable price. Secondly, the distinction between a domestic and international market is fading. Western and Eastern countries or even China and India themselves are so vast and their citizens are so culturally different that a firm's domestic logistics issues in these countries may be virtually identical to those encountered when they sell internationally. Indeed, one could argue that all business is potentially operating in the global environment. Finally, logistics is becoming more important to companies as they strive to serve and satisfy customers in increasingly diverse markets, wherever they may be.

The aim of this subject is intended to accomplish three objectives:

1. To deliver conceptual understanding on the nature of logistics activities in general and how these tasks function in a global setting;
2. To show how these activities can be grouped together to form an integrated logistics system;
3. To acquire the knowledge and skills to turn their corporate logistics activities into sources of sustainable competitive advantage in the global business arena.

Outline Subject Content

A. Introduction to Logistics
B. Global Trade Logistics
C. Movement of Goods
D. Managing the Inbound Logistics and Purchasing in the Organisation
E. Managing the Outbound Logistics
F. Customer Care and Service Quality
G. Organising for Logistics Effectiveness

Standard of Knowledge and Competence

A. Introduction to Logistics

The Candidate has to demonstrate the knowledge of the:

- Components in a logistics system
- Total cost concept and trade-offs in Logistics Management

- Reasons for the growing concerns in logistics and Supply Chain Management
- Logistics and information technology

The Candidate should be able to:

- Illustrate and describe the components in a logistics system
- Use the total cost concept to investigate logistics problems
- Identify trade-offs in logistics issues
- Examine the reasons for the growth of the logistics sector
- Portray the growing concern on global logistics issues
- Recognise the importance of using information technology in logistics

B. Elements of International Trade Logistics

The Candidate has to demonstrate the knowledge of:

- Characteristics, advantages and disadvantages of various modes
- Incoterms and contractual obligation
- Legal requirements for packaging, handling and labelling Various rates and charges determination regimes
- General knowledge of freight insurance
- Functions of the main documents used in commerce
- General knowledge on customs processes and documentation
- Transport document: financial documents and trade documents
- New developments in e-freight and electronic documentation
- Customs tariffs, excise and duties, variations in international trade
- Free-trade zone, bonded zone and carnet practices
- Cargo security in international trade

The Candidate should be able to:

- Evaluate the suitability of different modes under different circumstances
- Compare the differences among different Incoterms and evaluate the risks to various parties
- Distinguish between various rating and charging methods
- Understand the practices of trade documents, freight insurance and customs processes
- Examine the use of financial documents in financing trade and the implications on logistics practices
- Understand the general customs practices in international trade (origin-destination), and the benefits of using free trade zones or bonded logistics systems
- Recognise the importance of information needed in logistics processes
- Understand the importance of cargo security and illustrate the practices for enhancing the security level

C. Movement of Goods

The Candidate has to demonstrate the knowledge of:

- Various factors that may affect the handling of goods
- Characteristics and nature of goods that may affect the goods movement
- Flow patterns of different types of cargo
- Transport of dangerous goods and hazardous freight

- Fleet management and operations
- Concepts and techniques on routing and scheduling
- Basic components of different modes of transport
- Various logistics activities at modal nodes
- Requirements for efficient movement of goods

The Candidate should be able to:

- Identify the different characteristics and nature of goods that may affect the movement of the goods
- Illustrate the major factors that may affect the handling of goods
- Portray the flow patterns of goods in both global and national contexts
- Describe the concepts and techniques in routing and scheduling
- Examine various considerations in fleet management
- Describe the framework governing movement of dangerous goods and the practices for reducing risk of moving dangerous goods
- Explain the major components, functions and activities of different modes of transport
- Examine the requirements for the efficient movement of goods

D. Managing the Inbound Logistics in the Organisation

The Candidate has to demonstrate the knowledge of:

- The practices and importance of inbound logistics
- Various components and activities in inbound logistics
- Goals and objectives of purchasing activities
- Management techniques for improving materials handling management

The Candidate should be able to:

- Illustrate the distinctive features of current inbound logistics practices
- Explain the activities involved in inbound logistics
- Examine the efficiency of the practices in inbound logistics
- Highlight the goals, tasks and objectives of purchasing
- Explain how to improve the procedures and effectiveness of purchasing
- Evaluate which management techniques may help to improve materials management

E. Managing the Outbound Logistics

The Candidate has to demonstrate the knowledge of:

- The recent developments in the retail market and the requirements for outbound logistics
- Different supply chain strategies to enhance the efficiency of the retail market
- Factors to be considered in restructuring retail logistics systems
- Concepts, processes and elements in reserve logistics
- Logistics strategies on distribution channels and networks
- Roles, services and practices of third party logistics providers

The Candidate should be able to:

- Examine recent developments in retail market distribution and outbound logistics
- Identify the main contributions and elements in various logistics strategies

- Describe the concepts and explain the needs for reverse logistics processes
- Illustrate the process of formulating logistics strategies for outbound distribution networks
- Identify and examine the needs for integrating logistics channels
- Discuss the roles of third party logistics providers
- Evaluate the needs for third party logistics services in different circumstances

F. Customer Care and Service Quality

The Candidate has to demonstrate the knowledge of the:

- Concepts and elements in customer services in the logistics sector
- Features and characteristics of service provided in the logistics sector
- Requirements for developing and maintaining service quality
- Procedures and requirements for setting quality standards
- Concept and practices of total quality management
- Factors to be considered in quality control and assurance
- Information required and information systems on quality management
- Concepts, benefits and processes of benchmarking in logistics services
- Administrative, legal and financial considerations on quality management

The Candidate should be able to:

- Illustrate the distinctive features and the importance of customer care in the logistics sector
- Highlight the importance of service quality in the logistics sector
- Design and explain the setting of various quality standards and performance indicators in logistics practice
- Examine the effectiveness of quality control and assurance systems
- Identify the use of information systems in quality management and illustrate its importance
- Consider other factors and criteria for good quality management

G. Organising for Logistics Effectiveness

The Candidate has to demonstrate the knowledge of:

- Concepts, components and development of an optimal logistics organisation
- Strategic consideration for logistics organisational effectiveness
- Methods and techniques on measuring the effectiveness of logistics organisations
- Elements and considerations of the “best” organisation

The Candidate should be able to:

- Illustrate and explain various components of an optimal logistics organisation
- Discuss in different management aspects the effectiveness of logistics organisation
- Evaluate different strategic tools for improving organisational effectiveness
- Illustrate the considerations and factors in developing an effective logistics organisation
- Identify tools to measure effectiveness in a comprehensive way
- Discuss holistically on what is the best organisation structure

Key Knowledge Areas

A. Introduction to Logistics

Key Knowledge Areas	Coverage
Components of a Logistics System	• Various components: purchasing, information maintenance, product scheduling; material handling; inventory, warehousing; order processing, transport, customer services etc. • Interrelationship among components • Trade-off among various components
Factors affecting a company going global	• World market potential • Excessive production • Extending the product life cycle by geographical diversification • Logistics as a source of "competitive advantage"
Growing management interest in logistics	• Trends in global trade (e.g. NAFTA) • Mass customisation • Environmental concerns • JIT concept • Information technology advancement • Electronic commerce • Information management systems • Cloud computing • E-procurement • Internet of things (IoTs)

B. Global Trade Logistics

Key Knowledge Areas	Coverage
Parties involved in global trade logistics	• Role of sellers, buyers, shippers, carriers, agent, customs, surveyor, financial institutions, insurance company etc. • Import, export, re-export processes
Modal choices relating to types of demand and goods	• Modal characteristics • Modal advantages and disadvantages for different journeys and cargo • Multi-modalism, modal integration and interoperability
Packaging, handling and labelling requirements	• Internal and external packaging • Importance of labelling and packaging • legal requirements for safety of people, goods and the environment
Incoterms	• Use of Incoterms • Different Incoterms • Obligations and risks of buyers and sellers • Contractual obligation and transfer of risks
Rates, charges, tariffs and duties	• Costing systems and various types of costs • Cost-allocation and recovery

	• Rate quotation schedule • Time and distance-based charges • Structure and aspects of setting rates and charges such as trade unions, shippers' councils, government inventions etc. • Tariffs setting and authorities, and awareness of anti-trust laws • Taxes and duties as a source pf government income or an economic tool
Documentation	• Function of main documents used in national and international commerce • Transport documents, financial document, insurance documents and official documents such as Certificate of Origin • Importance of various transport documents and the implications on the risk and obligation of various parties • The use of financial documents such as Letter of Credit, Collection Instruction, Bill of Exchange etc. • Documents used in insurance claims • Roles of various government departments and the use of official documents
Freight insurance	• Goods-in-transit (GIT) insurance requirements • Convention on Contract for the International Carriage of Goods by Road • Incoterms and insurance arrangement
Customs processes	• Requirements for customs control, simplified procedures, pre-entry, and non-statutory procedure • Use and types of permits and carnets • Licensing and quotas • Bonded warehouse, open and closed bonded systems, free trade zones • Customs tariff , duties and taxes • Authorised Economic Operators
International journey planning	• Intermodal transport operations • Containerised cargo • Accompanied and unaccompanied movements
Information needs	• Role of information • Types of information relating to drivers, vehicles, loads, transport modes and customers
Cargo Security	• Trends of managing cargo security • International, national and business levels • Measures to enhance cargo security • Cargo security schemes and programmes • UN regulations and requirements

C. Movement of Goods

Key Knowledge Areas	Coverage

Goods to be moved	• How characteristics of goods impact their handling
	  ○ Types of goods
	  ○ Weight and Dimensions
	  ○ Transit regulations
	  ○ Legislative controls
	  ○ Handling methods
	• Safety and security needs

Origins, destination and routes	• Sources and destination
	  ○ World trade flow patterns
	  ○ Movement for retailing
	• Collection and delivery
	• Route planning and scheduling
	  ○ Basic concepts and techniques
	  ○ IT-based solutions
	  ○ Online multi-modal routing

Modes of Transport	• Suitability of modes
	• Unit of carriage
	• Modal nodes
	  ○ Ports / terminals
	  ○ Airports
	  ○ Road transport hubs
	• Transport techniques and practices
	  ○ Intra-modal
	  ○ Intermodal
	  ○ Combined transport

Goods Movement	• Types of goods and facilities required • Capacity constraints • Planning of the shipment of goods • Various types of controls • Documentation involved • Processes and constraints • Information flow and exchange • Third parties involved
Fleet management	• Elements of fleet management • Measures on enhancing productivity of fleet management • Green issues on fleet management and freight movements • Measures to reduce carbon footprints
Shipping dangerous goods (DGs)	• Characteristics and classifications of DGs • Packaging, labelling and documentation • Segregation and handling of DGs • Legal framework and requirements • IATA, IMDG and legal requirements • Considerations on handling hazardous materials

	and DGs • Awareness of potential DGs

D. Managing the Inbound Logistics and Purchasing in the Organisation

Key Knowledge Areas	Coverage
Growing importance of inbound logistics	• Globalisation • Demographic forces • Information and communications • Cost saving (excess production) • Risk reduction • Leveraging resources
Inbound logistics activities	• Customer service • Transport • Inventory management • Warehousing and storage • Maintenance • Information management • Salvage and waste disposal • Production
Purchasing	• Goals of purchasing • Purchasing tasks o Supplier selection o Quality management o Forward buying o Interaction with other corporate departments • Improving purchasing productivity
Management techniques for improving materials management	• Top management commitment • ABC analysis • Improved performance of other logistics activities • Improved demand forecasting • Inventory management software

E. Managing Outbound Logistics

Key Knowledge Areas	Coverage
Retail Market	• Control over secondary distribution • Restructuring of retailer's logistics systems • Quick response • Rationalisation of primary distribution • Supply chain management • Efficient consumer response (ECR) • Recycling / reuse of packaging material and handling material
Distribution Strategy and Network	• Formulating logistics strategies • Integrating the logistics channels
Role of third party logistics providers	• Cost reduction through specialisation • Joint synergy • Increased information to support planning

	• Customer service enhancement • Reduced or shared risks • Shared creativity • Gain competitive advantage • Risk associated with 3PL in partner relationships

F. Customer Care and Service Quality

Key Knowledge Areas	Coverage

Customer services	• Service sector organisation
	  o Generic features
	  o Specific issues related to transport / logistics organisations
	• Develop customer focus
	• Develop customer service culture
	• Internal and external customers

Service quality	• Understanding quality
	• Developing and maintaining quality
	• Conformance and performance quality systems
	• Setting quality standards
	  o Internal and external approaches
	  o Balancing organisational and customer requirements
	  o Competitor analysis
	  o Developing and using relevant performance indicators
	• Total Quality Management
	• Methods of analysis
	  o Process-Flow-charts
	  o Cause and effect analysis
	  o Failure mode analysis

Management Information Systems	• Roles and functions • Types of management information • Internal and external sources • Information gathering methods • Use of information technology • Role of communication in customer care
Benchmarking	• Basic definition and types of benchmarking • Aims and benefits • Stages of the process
Administrative, financial and legal requirements	• Importance of records • Costing different elements of quality management • Data protection and regulation concerning the maintenance of security • Client and commercial confidentiality

G. Organising for Logistics Effectiveness

Key Knowledge Areas	Coverage
Components of an optimal	• Structure and technology

logistics organisation	• Organisational characteristics • Environmental characteristics • Employee characteristics • Managerial policies and practices
Improving logistics organisational effectiveness	• Strategic goal settings • Resource acquisition and utilisation • Performance, environment, and communication processes • Leadership and decision making • Organisation, adaptation and innovation
Developing an optimal logistics organisation	• Corporate strategy and objectives • Compatible with corporate structure • Accountability of logistics executive • Management styles • Availability of support systems • Plan for human resources allocation

Measuring the effectiveness of a logistics organisation	• Cost-to-sales ratios
	• Predetermined standards
	• Logistics management personnel
	  ○ Line management ability
	  ○ Problem-solving ability
	  ○ Project management ability
	• 360 degree evaluation

Towards the "best" organisation structure	• Logistics activities and corporate objectives • Corporate size and structure • Determination of functional responsibilities • Flexibility and agility

Core Reading

Bowersox, D., Closs, D. and Cooper M.B. (2024). *Supply Chain and Logistics Management*, 6th ed. McGraw Hill, US.

Gourdin, K. (2006). *Global Logistics Management: a competitive advantage for the 21st Century*, 2nd ed. Wiley-Blackwell, Oxford.

Murphy Jr., P.R. and Knemeyer, A.M. (2018). *Contemporary Logistics*, 12th ed. Prentice Hall, US.

References

Bozarth, C.B. and Handfield, R.B. (2019). *Introduction to Operations and Supply Chain Management*, 5th ed. Prentice Hall, US.

Lai, K.H. and Cheng, T.C.E. (2009). *Just-in-time Logistics: An Introduction*. Gower, UK.

Heizer, J. and Render, B. (2023). *Operations Management, Sustainability and Supply Chain Management*. 14th ed. Pearson.

Advanced Level

Logistics Management Stream

AL 7: Warehousing and Materials Handling

Synopsis

This subject presents the fundamental warehouse management knowledge required of practitioners in logistics and storage and distribution related industries. It covers the role of warehouses and how warehouse management fits into the logistics operations of a firm. The key elements include facility development, warehouses, operations, materials handling, packaging, and its enhancing technology.

The subject aims to provide an understanding and build competence for those studying these key elements of warehouse management that are essential to both commercial and non-commercial organisations.

Outline of Subject Content

A. Role of Warehousing in Logistics Management
B. Facility Development
C. Warehouse Operations
D. Materials Handling Equipment and Packaging
E. Enabling Technology for Warehouse Management

Standard of Knowledge and Competence

A. Role of Warehousing in Logistics Management

The Candidate has to demonstrate the knowledge of:

- Role of warehouses in Logistics Management
- Basic operations of warehouses
- Functions and importance of warehousing

The Candidate should be able to:

- Describe the operations of a warehouse
- Identify the uses of various types of warehouse
- Decide on whether to develop “in-house” or “contract out” warehousing
- Determine the needs for storage

B. Facility Development

The Candidate has to demonstrate the knowledge of:
- Concepts and theories on location choice
- Factors affecting the size, number and location of warehouses

The Candidate should be able to:
- Decide the location and size of a warehouse
- Formulate strategies for locating a warehouse
- Design the basic storage system in a warehouse

C. Warehouse Operations

The Candidate has to demonstrate the knowledge of:
- Various activities in warehouse operations
- Various systems for item picking in warehouses
- Principles in receiving and put-away
- Requirements on cargo security

The Candidate should be able to:
- Benchmark the operations of a warehouse
- Determine the uses of different picking systems
- Evaluate the choice of equipment to be used in warehouse operations
- Design work study processes for warehouse operations
- Discuss the fulfilment of the requirements of warehouse security for various stakeholders

D. Materials Handling Equipment and Packaging

The Candidate has to demonstrate the knowledge of:
- Types of equipment for materials handling
- Factors affecting package design
- Marketing and logistics functions of packaging

The Candidate should be able to:
- Decide on whether to use manual or automated systems
- Relate the functions of packaging to logistics operations
- Determine suitable systems and equipment for materials handling

E. Enabling Technology for Warehouse Management

The Candidate has to demonstrate the knowledge of the:
- Functions and forms of various enabling technologies for warehouse management
- Components and functions of a Warehouse Management System (WMS)
- Considerations of using WMS

The Candidate should be able to:
- Determine the form of acquiring the required technology
- Comment on the suitability of various types of enabling technologies for warehouse management

- Evaluate the impact of applying Information Technologies for warehouse operations

Key Knowledge Areas

A. The Role of Warehousing in Logistics Management

Key Knowledge Areas	Coverage
Nature and importance of warehousing	• Definition • Warehousing and distribution centres • Warehousing tasks • Warehousing functions
Reasons for storage	• Transport-production cost reduction • Coordination of supply and demand • Production needs • Marketing considerations
Uses of warehouses	• Holding stock/goods • Consolidation • Break-bulk • Mixing
Types of warehouses	• Private warehouses • Public warehouses • Cross-docking warehouses • Contract warehouses

B. Facility Development

Key Knowledge Areas	Coverage
Size and number of warehouses	• Factors affecting warehouse size and number of warehouses • Warehouse size and materials handling equipment • Demand and warehouse size
Location analysis	• Market-positioned warehouses • Production-positioned warehouses • Intermediately-positioned warehouses • Various Important location models: ➢ Von Thunen's model ➢ Weber's model ➢ Hoover's model ➢ Greenhunt's model • Site Selection Approaches: ➢ Center-of-Gravity approach ➢ Schmenner's eight-step approach
Warehouse layout and design	• Warehouse design principles • Productive and non-productive areas • Randomised storage • Dedicated storage • Warehouse redesign

C. Warehouse Operations

Key Knowledge Areas	Coverage
Monitoring warehouse operations	• Warehouse activity profiling • Measuring and benchmarking warehouse performance
Receiving and put-away principles	• Receiving • Put-away
Pallet storage and retrieval systems	• Pallet storage systems • Pallet retrieval systems
Case picking system	• Pick face palletising systems • Downstream palletising • Direct loading systems • Case picking systems selection
Small item picking systems	• Picker-to-stock systems • Stock-to-picker systems • Automated item dispensing machines • Broken case picking systems comparison and selection
Order picking operations	• Issue pack optimisation • Pick from storage • Pick task simplification • Order batching • Slotting optimisation • Pick sequencing
Utilising and shipping	• Container optimisation • Container loading and void filling • Weight checking • Automated, direct loading • Dock management
Warehouse workforce design	• Safety and ergonomic training • Time standards, incentives, and personnel schedule • Optimal management-operator ratios • Cross-training
Warehouse security	• Warehouse security – supply chain security, TAPA certification • Requirements by other authorities such as customs, civil aviation department

D. Materials Handling Equipment and Packaging

Key Knowledge Areas	Coverage
Manual systems	• Storage and order-picking equipment • Storage racks • Bin shelving systems • Modular storage • Transport and storage equipment

Automated systems	• Automated storage and order-picking equipment • Carousels (horizontal and vertical) • Automated guided vehicle (AGV) systems • Robots • Shipping automation • Computerised documentation
Functions of packaging	• Marketing functions • Logistics functions: containment, protection, apportionment, utilisation, convenience, and communication
Package design	• Factors influencing package design • Packaging and logistics cost trade-offs

E. Enabling Technology for Warehouse Management

Key Knowledge Areas	**Coverage**
Warehouse technology	• Warehouse management System (WMS) • Radio Frequency Identification (RFID) • Bar-code technology and label generation equipment • Wireless communication inside warehouses • Electronic data interchange (EDI) • Transportation Management Systems (TMS) • Interface to Enterprise Resources Planning (ERP) systems • The warehouse of the future
WMS Components	• General requirements • Inventory location and management requirements • Receiving requirements • Put-away requirements • Order management requirements • Replenishment requirements • Picking requirements • Labour management requirements • Shipping requirements • Work flow management
WMS justification, selection and implementation	• WMS and efficiency enhancement • WMS buy versus build decision issues • WMS impacts analysis • WMS implementation

Core Reading

Frazelle, E. (2016). *World-Class Warehousing and Materials Handling*. 2nd ed, McGraw Hill, US.

Richards, G. (2018). *Warehouse Management: A Complete Guide to Improving Efficiency and Minimising Costs in Modern Warehouse*, 3rd ed. Kogan Page, UK.

References

Jeron, P. van den Berg (2007). *Integral Warehouse Management: The Next Generation in Transparency, Collaboration and Warehouse Management Systems*. Management Outlook Publishing, Netherlands.

Liu, H. (2014). *Warehouse and Distribution Centre*. Design Media Publishing Limited