The Chartered Institute of Logistics and Transport in Hong Kong

Professional Qualification Examination

Introduction

The Professional Qualification Examination (PQE) is designed for managers and supervisors working in the field of transport and logistics. It is designed to broaden knowledge, skills and competence as part of the professional and/or managerial role.

For admission as a Chartered Member of CILT in Hong Kong, a candidate has to satisfy the educational requirement of passing nine 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 five specific subjects are designated.

Structure of the Examination

The structure of the Professional Qualification 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: Information Technology for Transport and Logistics

Advanced Level
[Candidates have to complete all five subjects within the chose stream]

Transport Management Stream

- AL 1: Law of Business and Carriage
- AL 2: Management and Decision Making
- AL 3: Transport Systems and Management
- AL 4: Sustainable Transportation
- AL 5: Transport Policy and Planning

Logistics Management Stream

- AL 1: Law of Business and Carriage
- AL 2: Management and Decision Making
- AL 6: Global Supply Chain Management
- AL 7: Logistics Management
- AL 8: 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) Each examination paper consists of two parts and there are four questions in each part. A candidate is required to answer two questions from each part.
iii) Candidates are allowed to register for any number of subjects but, before they are allowed to attempt the Advanced Level, they must have passed all the Ordinary subjects, unless an exemption from the E&T Committee of CILTHK has been obtained.
iv) 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 Qualification 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 general idea on the why these modules are included in the examination and how they are related to transport and logistics industry.

Outline Subject Content illustrates the main areas that would be examined. This item 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.

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.

Outline Subject Content

A. Overview of Transport and Logistics
B. Elements of Transport and Logistics Systems
C. Analyzing and Controlling of a Transport and Logistics System

Standard of Knowledge and Competence

A. Overview of Transport and Logistics

The Candidate must demonstrate knowledge of:
- Characteristics of various modes of transport
- Concepts and theories on modal competition
- Component of IT system in logistics sector

The Candidate should be able to:
- Compare and contrast the pros and cons of using different modes of transportation
- Determine and analyze the market structure of the transport and logistics industry
- Appreciate the use of IT in transport and logistics

B. Elements of Transport and Logistics Systems

The Candidate must demonstrate knowledge of:
- Various activities of the elements in transport and logistics systems
- Various internal and external factors that may affect the industry
- Government intervention in the sector

The Candidate should be able to:
- Apply total cost concepts to analyze transport and logistics problems

- Relate different elements in transport and logistics systems
- Identify different elements in transport and logistics activities

C. Analyzing and Control of a Transport and Logistics System

The Candidate must demonstrate knowledge of:

- Environmental concerns concerning the transport and logistics sector
- Recent issues in logistics development
- Systems concept and its use in transport and logistics

The Candidate should be able to:

- Analyze transport and logistics in a systematic way
- Evaluate contemporary issues holistically
- Discuss conventional transport and logistics issues with alternative views

Key Knowledge Areas

A. Overview of Transport and Logistics

Key Knowledge Areas	Coverage
The transport and logistics objectives, scope and products	• Modal characteristics • Derived demand nature of urban transport, freight transport and logistics • Safety regulations • Intermodal operations
The institutional and market environment: privatization, economic deregulation and competition	• Subsidy in urban transport • Ownership and organization • Government policies toward transport and logistics • Micro and Macro economics on transport and logistics
Logistics and information technology	• General types of information management systems • Applications of E-commerce in logistics and smart cards in urban transport

B. Elements of Transport and Logistics Systems

Key Knowledge Areas	Coverage
Total cost concept	• Cost structure of different transport modes • Cost trade-off • Load factors and schedule services
Order management and customer	• Order cycle and processing

service	• Measuring and controlling customer service • Overall customer service policy
Material packaging and handling	• Product characteristics • Material handling and packaging principles • Unit load devices in material handling
Urban Transport	• Transport planning • Public service and cross-subsidy • Local transport policy
Industrial transport management	• Rate determination and negotiation activities • Rate regulatory bodies • Documentation and related chartering practices • Transport of Hazardous Material
Warehouse Management	• Type and function of warehousing • Design and operation of warehouses • Location of warehouses and networking planning processes
Inventory management	• Inventory classification • Inventory flow and simple EOQ model • Contemporary approaches for managing inventory
Procurement Management	• Global sourcing and E-procurement • Supplier selection and management • Purchasing ethics
Human resources management	• Contemporary human resources management theories • Factors affect labour supply and demand • Manpower issues • Unions and strikes

C. Analyzing and Controlling a Transport and Logistics System

Key Knowledge Areas	**Coverage**
Logistics system controls	• Financial and accounting controls • Worker productivity • Energy saving control and green logistics
Analysis to logistics system	• Definition of system analysis • Problems in system analysis • Related partial system • Logistics system design

Core Reading

Gubbins, E.J (2003), Managing Transport Operations, Kogan Page, London

Wood, Donald F and Murphy Paul R (2004), Contemporary Logistics, Pearson, Prentice Hall

References

Ballou Ronald H (2004), Business Logistics/Supply Chain Management (Fifth Edition), Pearson, Prentice Hall

Hensher D.A. (2001) Transport: an economics and management perspective, Oxford University Press

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 analyze the financial statements. It also covers 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 nature of accounting systems;
2. explain the basic concepts and processes used to determine product and service costs;
3. explain the various costing techniques and 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

Standard of Knowledge and Competence

A. Accounting Framework

1. Conceptual and regulatory framework

The Candidate must demonstrate 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 must demonstrate knowledge of:

- The different user groups and the objectives of financial statements
- The key functions of financial accounts & 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 must demonstrate 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 must demonstrate knowledge of:

- The major kind 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 must demonstrate 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
- Analyze 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 must demonstrate 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 must demonstrate 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 must demonstrate 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 break even point, margin of safety and profit / volume ratio
- Prepare cost-volume-profit analysis

4. Activity-based-costing (ABC) approach

The Candidate must demonstrate 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. <u>Budgeting</u>

1. Budget theory and components

The Candidate must demonstrate knowledge of:

- The budget theory
- Why firms prepare 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 must demonstrate 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 must demonstrate knowledge of:

- What are 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 must demonstrate 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 must demonstrate knowledge of:
- The basic concepts of cost-benefit analysis
- What are relevant and irrelevant costs and benefits

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

3. Different sources of capital

The Candidate must demonstrate knowledge of:
- Types of features of short and long term finance
- What are 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 must demonstrate knowledge of:
- 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

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 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. <u>Cost Accounting Systems & Techniques</u>

1. Different costing principles and techniques

Key Knowledge Areas	**Coverage**
Absorption versus 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	• Why firms use costing systems • Functions of cost statements for service organizations

3. Marginal costing and decision making

Key Knowledge Areas	Coverage
Fundamental concepts for marginal costing	• What are relevant costs and the 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 ABC system	• 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	• What is a budget • Why firms need to prepare budgets • Information technology and budgeting
Budget components	• What are functional budgets • Master budgets • Budget profit & loss account, balance sheet • Cash budgets

2. Budget process and preparation

Key Knowledge Areas	Coverage
Budget process	• How firms prepare 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 budgets like motivation and communications
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 versus IRR method	• Compare and contrast differences between the two commonly used approaches • How to choose 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 • What are irrelevant costs and benefits • Financial and non-financial risks
Application of CBA in decision making	• How to analyze 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 lease in financial planning in a transport / logistics undertaking • Effects of taxation

Core Reading

Horngren, C; Foster, G and Datar, S (2002) Cost Accounting : A Managerial Emphasis, 11th ed., US: Prentice Hall.

Williams, Haka, Bettner, Carcello (2005) Financial Accounting, 12th ed., US: McGraw-Hill.

References

Drury, C. (2004) Management and Cost Accounting, 6th ed., US: International Thomson Business Press

Ray H. Garrison, E.W. Noreen, Brewer (2003) Managerial Accounting, 11th ed, US: McGraw-Gill Irwin.

Ross, Westerfield, Jordan (2004) Corporate Finance Fundamentals, 7th ed.. US: McGraw-Hill

Ordinary Level

OL 3: Marketing and Service Management

Synopsis

Markets are increasing characterized by demanding customers and consumers. A paradigm shift has changed the market from producer-led to consumer-driven. Firms can no longer reply upon the classic 4Ps of product, price, promotion and place to support its market-leadership. To survive and possibly 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 both in 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 must demonstrate knowledge of:

- Basic concepts on services, customer services and derived services
- The differences between physical products and services
- Various characteristics and attributes of services
- 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 analyze the services provided in transport and logistics sector
- Distinguish between physical products and services
- Illustrate the importance of quality and reliability through transport and logistics services
- Examine the marketing mix concepts through case studies
- Apply service marketing mix concepts to analyze cases
- Understand the limitations and uses of marketing in not-for-profit logistics and transport activities

B. Marketing Environment and Marketing Policy

The Candidate must demonstrate knowledge of:

- 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 the 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 of the marketing environment
- Discuss other issues on marketing such as market communication, manpower and organizational issues

C. Market Characteristics and Market Research

The Candidate must demonstrate knowledge of:

- Various types of topologies on market characteristics
- Various market research techniques, their usages and advantages
- Methods to collect market 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 must demonstrate 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 on recovery strategies and quality assurance programmes
- How to design a quality assurance programme
- Organizational 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 on service marketing
- Working conditions and 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 for it
- Illustrate the costs of quality in 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 a suitable quality assurance programme
- Discuss issues on the organization of a service management system
- Discuss the relationship between marketing and operations
- Illustrate the functions of and elements in service portfolios 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 must demonstrate 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 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 globalized 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 on marketing
- Identify the importance of relationship marketing
- Illustrate the process of building buyer-seller relationships
- Recognize the social responsibility and the 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. Developing Customer Relations and Customer Satisfaction Measurement

The Candidate must demonstrate 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 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 various issues on 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 • Organizational arrangement

C. Market Characteristics and Market Research

Key Knowledge Areas	**Coverage**
Market Characteristics	• Market segmentation and differentiation • Core and augmented product • 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

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	• Organizational 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 energize 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
Globalized 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 quality methods • Use of the results

Core Reading

Hakserver, C. et al. (2000) Service Management and Operations. (2nd ed.) US: Prentice Hall.

Zeithaml, V.A., Bitner, M., Gremler, D. D. (2006) Services Marketing – Integrating Customer Focus Across the Firm (4th ed.) New York: McGraw-Hill.

References

Lovelock, C and Wirtz, J. (2004) Services Marketing: People, Technology. Strategy. (5th ed.) US: Pearson Prentice Hall

Palmer, A. (2005) Principles of Services Marketing (4th ed.), UK: McGraw-Hill.

Ordinary Level

OL 4: Information Technology for Transport and Logistics

Synopsis

This subject presents the knowledge of key generic aspects of information technology that are involved in transport and logistics practices. It provides a basis for professionals in the sectors to understand the components of information systems, to know how information technology would help the industry, and to comprehend the development of information technology in e-business.

The subject covers the main technologies that are currently being used in transport and logistics practices. Moreover, issues on the application of the information systems in transport and logistics are included.

Outline Subject Content

A. Information Flow and Information Systems
B. Components of Information Technology
C. Technology Applications in Transport and Logistics
D. E-Business Application in Transport and Logistics Industry
E. Security, Encryption and Data Integrity

Standard of Knowledge and Competence

A. Information Flow and Information Systems

The Candidate must demonstrate knowledge of:

- Types, flow and users of the information in transport and logistics
- Needs and importance of information
- Various aspects of information systems
- Strategic roles of information systems

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

B. Components of Information Systems

The Candidate must demonstrate knowledge of:

- The components in a computer system
- Computer hardware and software typologies
- Different concepts and tools for data management
- Different concepts; typology of computer networks
- Different types of information systems
- The trend of network development

The Candidate should be able to:

- 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

C. Technology Applications in Transport and Logistics

The Candidate must demonstrate knowledge of:

- The features and operations of main technologies used in transport and logistics operations
- Functions of GPS, GIS, EDI, RFID, bar codes
- Strengths and limitations of the technologies

The Candidate should be able to:

- Appreciate and/or comment on the use of information technologies on transport and logistics practices
- Understand the technology of GPS and GIS
- Comprehend the trends in the development of information technologies
- Identify the benefits of using various information technologies

D. E-Business Application in Transport and Logistics Industry

The Candidate must demonstrate knowledge of:

- Concept of e-business and its relationship with transport and logistics
- Ideas of electronic payment systems
- Various communication networks and devices the in the transport and logistics industry
- How information technologies are applied in logistics activities

The Candidate should be able to:

- Define e-business and outline the infrastructure model for Internet business
- Identify the activities with Internet technology involvement in the transport and logistics industry

- Illustrate the features, usages and characteristics of various communication system devices in transport and logistics practices
- Evaluate the benefits of using Internet technology to replace conventional methods

E. <u>Security, Encryption and Data Integrity</u>

The Candidate must demonstrate knowledge of:

- Concepts and processes of data security management
- Methods and tools that are used in securing data, and computer and network security
- Concepts and issues on data integrity

The Candidate should be able to:

- Review the potential risks of accessing the Internet and the importance of security
- Identify various types of access control and data security tools
- Understand the trend and importance of data security and data integrity

Key Knowledge Areas

A. Information Flow and 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 etc
	• Information Flows
	• Why information Systems are important

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
	• Aspects:
	  ➢ Technology
	  ➢ Applications

	➢ Development ➢ Management • People resources and institutional arrangements
Information Technology	• Hardware • Software • Data management • Telecommunication networks
Strategic role of information technology	• Strategic advantage ➢ Cost Reduction ➢ Differentiation ➢ Innovative ➢ Promote growth ➢ Formation of alliances • Support management decision-making processes

B. Components of Information Systems

Key Knowledge Areas	**Coverage**
Components of computer system	• Input • Output • Process • Storage • Control
Hardware and Software	• Application Software • System Software • Operating Systems • Types of computers • Computer Peripherals
Managing data resources	• Data storage • Data Structure • Data Management
Networks	• Wide area networks • Local area networks • Interconnected networks ➢ Internet ➢ Intranet ➢ Extranet • Client / server and inter-organizational 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 trade partners • Enhance customer services • Logistics Management Systems • E-government and logistics practices

C. Technology Applications in Transport and Logistics

Key Knowledge Areas	**Coverage**
Intelligent transport System (ITS)	• Definition • Functions of ITS • Applications ➢ Passengers / Drivers / Firms ➢ Vehicles / unit of carriage ➢ Highway / Road Network ➢ Commercial applications • Benefits of ITS
Global Positioning System (GPS)	• Concept • Applications o Track and Trace o Routing o Security
Geographic Information System (GIS)	• Defining GIS • Functions of GIS ➢ Data capture ➢ Data storage and manipulation ➢ Data analysis ➢ Data dissemination and Display • Spatial Query and analysis
Electronic Data Interchange (EDI)	• Functions of EDI • Advantages of EDI • Its applications in the transport and logistics industry • Trends of web-based data transfer
Automatic ID	• Bar Coding • Radio Frequency Identification Device (RFID) ➢ Definition ➢ Elements of RFID ➢ Use of RFID in logistics

D. E-Business Application in Transport and Logistics Industry

Key Knowledge Areas	Coverage
E-Business	• Scope of E-business • E-business Process • Scope of Electronic Commerce • Electronic Transaction
Communication Systems	• EDI • Internet • Extensible Markup Language • Satellite Technology • Radio Frequency Exchange • Image Processing • Bar Coding and Scanning
Electronic Payment Process	• Electronic funds transfer • Web-based payment • Secure electronic payment
IT applications	• Schedule and Booking Management • Negotiation Management • Track and Trace • Document Transfer in logistics practices

E. Security, Encryption and Data Integrity

Key Knowledge Areas	Coverage
Security Management of Information Technology	• System vulnerability • Types of risk in e-Business • Risk assessment • Risk reduction • System Auditing
Security control	• Encryption • Firewalls • Denial of Service Defenses • Security Codes • Biometric Controls
Data integrity	• Concept • Computer Crime • Authentication

Core Reading

O'Brien, J.A. (2004) Management Information Systems: Managing Information Technology in the Business Enterprise, 6th ed., McGraw-Hill: US.

Turban, E. et. al. (2006) Electronic Commerce: A Managerial Perspective (4th ed.) New Jersey: Pearson Prentice Hall.

References

Alter, S. (2002) Information Systems: the Foundation of E-Business (4th ed.) New Jersey: Prentice Hall.

Bernhard, T. (ed.) (1997) Information Systems in Logistics and Transportation, UK: Oxford.

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 of carriage of goods by air and sea 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. Law of Contract
B. Law of Negligence
C. Bill of Lading and Hague Visby Rule (HVR)
D. Air Waybill and Warsaw Convention
E. Arbitration
F. Cargo Insurance

Standard of Knowledge and Competence

A. Law of Contract

The Candidate must demonstrate knowledge of:

- The essential elements to form a contract
- The terms of contract
- The privity of 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 Type 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

B. Law of Negligence

The Candidate must 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 v Kirby Maclean (1952) and the reasonable foreseeable objective test for remoteness
- Explain what are contributory negligence, consent and exception clauses in business

C. Bill of Lading and Hague Visby Rule (HVR)

The Candidate must demonstrate knowledge of:

- The terms implied in common law
- The functions of a bill of lading
- The evolution of Hague Rules, Hague Visby Rules and Hamburg Rules
- The scope of application of the HVR
- The duties of a carrier under the HVR
- The possible defences available to a carrier
- The limitation of liability
- The time limit in pursuing claims
- The Ordinances related to the HK shipping industry including Carriage of Goods by Sea Ordinance (Cap 462), the Bills of Lading Analogous Shipping Document (Cap 440), and the Electronic Transactions Ordinance (Cap 553)

The Candidate should be able to:

- Identify the carrier's obligations under the implied terms in common law; namely to provide a seaworthy ship, to proceed with reasonable dispatch, not to ship dangerous goods, and not to deviate from the agreed voyage without lawful justifications
- Explain the three functions of a bill of lading; namely document of title, receipt and evidence of a contract of carriage
- Understand the scope application of the HVR and when its rules apply
- Explain the duties of a carrier under the HVR, including supplying a seaworthy ship, handling cargo properly and carefully, and to issue a bill of lading
- Know how to protect the carrier's legal position by the defences available under HVR
- Understand the carrier's limitation of liability
- Observe the importance of the time limit under HVR

D. Air Waybill and Warsaw Convention

The Candidate must demonstrate knowledge of:

- The Warsaw Convention and the Hague Protocol
- The scope of application of the Hague Protocol
- The functions of an air waybill
- The rights and obligations of the parties
- The liability for loss, damage and delay
- The defences of a carrier
- The limitation of liability and the time limit in pursuing claims
- The Guadalajara Convention 1961
- The Carriage by Air Ordinance (Cap 500)

The Candidate should be able to:

- Understand the background of the Warsaw Convention 1929 and the Hague Protocol 1955 ("the amended Convention")
- Recognize the scope of application of the Hague Protocol and when its rules apply
- Explain the content and functions of the air waybill
- Recognize the rights and obligations of the parties
- Interpret the liability of a carrier for loss of or damage to cargo, and loss by delay under the amended Convention
- Know how the carrier's liability can be protected and how to determine the limit of liability under the amended Convention
- Observe the importance of the time limit under the amended Convention
- Understand the background and application of the Guadalajara Convention 1961
- Understand the application of the Carriage by Air Ordinance (cap 500) in Hong Kong

E. Arbitration

The Candidate must 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 arbitrations and ad hoc and institutional arbitrations
- Understand the importance of arbitration agreements and what essentials are contained therein, such as jurisdiction, seat of the arbitration 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

F. Marine Cargo Insurance

The Candidate must demonstrate knowledge of the:

- Parties involved
- Types of insurance document
- Meaning of contract of indemnity
- Meaning of utmost good faith
- Meaning of disclosure by the assured
- Meaning of insurable interest
- Institute Cargo Clauses (A)
- Institute Cargo Clauses (B)
- Institute Cargo Clauses (C)
- Cargo claims document

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 of marine insurance is a contract 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
- Explain the expected perils under the ICC(A)
- The enumerated perils under the ICC(B) and (C)
- Identify the documents needed in submitting a claim

Key Knowledge Areas

A. 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 and persons who are drunk • 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

B. Law of Negligence

Key Knowledge Areas	**Coverage**
Duty of care	• Neighbour principle – Donoghue v Stevenson (1932) • For economic loss – Smith v Bush (1990) • Types of economic loss • Negligence misrepresentation – Caparo Industries v 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 v Kirby Maclean (1952), Barnett v 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 v Clay Cross (1956) • Limitation – Control of Exemption Clauses Ordinance (Cap 71)

C. Bill of Lading and Hague Visby Rule (HVR)

Key Knowledge Areas	**Coverage**
Terms implied in common law	• Seaworthy ship • Reasonable dispatch • Dangerous goods • Deviation
Functions of a bill of lading	• Document of title • Receipt for cargo as to quantity, quality and condition • Evidence of contract of carriage
Scope of application of the HVR	• Carriage of Goods by Sea Act 1971 (COGSA 1971) • Hague Rules, Hague-Visby Rules and Hamburg Rules

	• Application of HVR "voyage", "documents" and "goods"
Duties of carrier	• Seaworthiness: Article III (I) • Handles cargo properly and carefully: Article III (2) • Issue bill of lading: Article III (3)
Defences of carrier	• Article IV(2) (a) to (q)
Limitation of liability	• Article IV (5)
Time limit	• Article III (6)
The Ordinances related to the shipping industry in Hong Kong	• Carriage of Goods by Sea Ordinance (Cap 462) – the relationship between the Ordinance and the HVR • Bills of Lading Analogous Shipping Documents (Cap 440) – title to sue and transfer of rights and liabilities • Electronic Transactions Ordinance (Cap 553) – the recognition of electronic bills of lading in Hong Kong

D. Air Waybill and Warsaw Convention

Key Knowledge Areas	**Coverage**
The Warsaw Convention and Hague Protocol	• Warsaw Convention 1929 • Hague Protocol 1955 ("the amended Convention")
Scope of application of Hague Protocol	• Article 1 and Article 2 of Hague Protocol • Gratuitous carriage • International carriage • High contracting parties • Extraordinary and experimental carriage • Successive carriage
Air waybill	• Content of air waybill: Article 8 • Functions of air waybill: Article 11 • Absence, irregularity or loss of the air waybill
Rights and obligations of the parties	• Carrier's rights and obligations: right to be indemnified (Article 10 and Article 12) • Presumed liability for loss, damage and delay: Article 30 • Consignor's rights and obligations: Articles 10 and 12) • Consignee's rights at the airport of destination: Article 13
Liability for loss, damage and delay	• Loss or damage to cargo: Article 18(1) • Loss by delay: Article 19

Defences of carrier	• All necessary measures: Article 20 • Contributory negligence: Article 21
Limitation of liability	• Limits of liability: Article 22 • Reduction of limitation of liability; Article 23 • Willful misconduct: Article 25
Time limit	• Time bar (2 years): Article 29(1)
Guadalajara Convention 1961	• Protection to "Actual Carrier" (Amendments to Hague Protocol 1955)
Carriage by Air Ordinance (Cap 500) (CAO)	• The main purposes of the CAO • The relationship between the CAO and the international conventions

E. Arbitration

Key Knowledge Areas	**Coverage**
Arbitration, mediation and negotiation	• Types of alternative dispute resolution, advantages and disadvantages of each types
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

F. Cargo Insurance

Key Knowledge Areas	**Coverage**
Parties involved	• The roles played by the assured, insurance broker, insurance agent and underwriter
Types of insurance document	• Cover note and Insurance policy
Contract indemnity	• S2(1) Marine Insurance Ordinance • Castellain v Preston
Utmost good faith	• S17 Marine Insurance Ordinance • Meaning of "uberrimae fidei" • Consequence of non-compliance
Disclosure by assured	• S18(1) Marine Insurance Ordinance • 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	• S4 Marine Insurance Ordinance • 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
ICC (A)	• Exclusions under ICC (A)
ICC (B)	• Risks covered under ICC (B)
ICC (C)	• Risks covered under ICC (C)
Cargo claims document	• Documents needed to substantiate a claim

Core Reading

Chan, Felix; Ng, Jimmy and Wong, Bobby (2002) Shipping and Logistics Law – Principles and Practice in Hong Kong, Hong Kong: Hong Kong University Press.

Stott, Vanessa (2001) An Introduction to Hong Kong Business Law, Hong Kong: Longman.

References

Chuah, Jason (2005) Law of International Trade, London: Sweet and Maxwell.

Wilson, John (2004) Carriage of Goods by Sea, UK: Pitman

Advanced Level

Transport Management Stream / Logistics Management Stream

AL 2: Management and Decision Making

Synopsis

This subject aims to equip students with the knowledge and competence relating to management, managerial decision making and management ethics that is required of managers in logistics and transportation organizations in the 21st century.

The principal ideas and framework relating to the functions of management, decision making, productivity and quality improvement, and ethics and moral reasoning, are covered to enable students to conceptualize and tackle managerial issues in the real world.

Outline Subject Content

A. Nature of Management and Managerial Work
B. Managerial Decisions
C. Planning and Decision Making
D. Organizing
E. Leading and Managing People
F. Controlling
G. Productivity, Quality and Operations Management
H. Management Ethics

Standard of Knowledge and Competence

A. Nature of Management and Managerial Work

The Candidate must demonstrate knowledge of:

- Definition of productivity effectiveness and efficiency
- Definition of organizational stakeholders
- Goals of managers and organizations
- Definition of planning, organizing, staffing, leading, controlling and coordinating
- Classical theories and approaches of management
- Recent contributions and approaches of management
- The systems approach to management

- Managerial skills and the organization hierarchy

The Candidate should be able to:

- Explain the meaning of efficiency and effectiveness
- Describe the stakeholders of an organization and their needs
- Explain the goals of management and managerial work in the work place
- Explain the functions of management at different organizational levels and identify the planning, organizing, staffing, leading, controlling and coordinating aspects of a given managerial task
- Describe the core ideas behind key managerial theories and approaches in the last few decades
- Describe the elements of a system and to describe a managerial situation using the systems approach
- Differentiate between conceptual, technical and interpersonal skills and describe the skill required of managers in various organizational positions

B. Managerial Decisions

The Candidate must demonstrate knowledge of:

- The nature of managerial decisions
- Normative and descriptive models
- Risk, probability and decision trees
- Rationality and bounded rationality
- Problem definition and generation, evaluation and selection of alternatives
- Programmed and non-programmed decisions
- Individual and group decision making
- The creative process and obstacles to creativity and innovation
- The creative manager

The Candidate should be able to:

- Define decision making and describe the characteristics of management decisions
- Explain the differences between normative and descriptive models and classify given models as descriptive or normative
- Define risk and probability and draw decision trees for given problems
- Explain the differences between rationality and bounded rationality in making managerial decisions
- Differentiate between problems and symptoms
- Conceptualize and represent problem using tools such as problem maps
- Describe and apply the basic tools and approaches for generation, evaluation and selection of alternatives
- Differentiate between programmed and non-programmed decisions
- Describe the differences between individual and group decision making and their implications
- Describe the nature of creativity and innovation in a managerial context

- Describe the common obstacles to creativity and innovation and the tools for overcoming them

C. Planning and Decision Making

The Candidate must demonstrate knowledge of:

- The management hierarchy
- Mission, goals, objectives, strategies and polices
- Hierarchy of goals
- Nature of decisions and the organizational hierarchy
- Strategic planning and functional levels
- Information needs of decision makers
- The organization as an information system
- Common decisions in the logistics and transport trades
- Common planning and decision making tools: optimization and scheduling

The Candidate should be able to:

- Use organization charts to understand and represent the hierarchical relationships in an organization
- Describe the relationships between mission, and the hierarchy faced by managers in different positions of the organization
- Describe the strategic planning process and the characteristics of strategic decisions, at the divisional and departmental levels
- Identify the information needs of people in different positions of an organization
- Describe the nature and characteristics of common decisions in the logistics and transport trades
- Describe some commonly used tools for handling optimization and scheduling problems

D. Organizing

The Candidate must demonstrate knowledge of:

- Basic elements of organizing
- Managing organization design
- Strategy and organization design
- Basic forms of organization design and their issues

The Candidate should be able to:

- Combine six basic organizing elements: designing jobs, grouping jobs, establishing reporting relationship between jobs, distributing authority among jobs, coordinating activities among jobs, and differentiating between positions
- Explain the two different perspectives on organization design with bureaucratic models and behavioral models
- Describe organization structure to support Corporate-level strategy, business-level strategy and organization functions

- Identify different forms of designs: functional design, conglomerate design, divisional design, matrix design, and hybrid design, and evaluate their strengths and weaknesses

E. Leading and Managing People

The Candidate must demonstrate knowledge of:

- Personality and individual behaviour
- Attitudes and perceptions of individual behaviour
- The nature of motivation
- Content, process, and reinforcement perspective on motivation
- The nature of leadership and different approaches to leadership
- The interpersonal nature of organizations
- Characteristics of groups and teams
- Conflicts in organizations

The Candidate should be able to:

- Apply the Myers-Briggs framework to analyze personality traits at work
- Explain different work-related attitudes and basic perceptual processes
- Define motivation and explain its importance
- Apply different approaches to different perspectives on motivation
- The needs hierarchy approach and the two factor theory for content perspective
- Expectancy theory, equity theory and goal-setting theory for process perspectives
- Different kinds of reinforcement and the implications on motivation

F. Controlling

The Candidate must demonstrate knowledge of:

- The nature of control
- Various forms of control: Operations control, Functional control , Structural control, Strategic control
- Characteristics of effective control

The Candidate should be able to:

- Apply the types and steps of control
- Explain preliminary and screening control
- Manage budgetary control
- Explain bureaucratic and decentralized control
- Integrate strategy and control
- Manage control in organizations

G. Productivity, Quality and Operations Management

The Candidate must demonstrate knowledge of:

- The nature of value, productivity and quality
- Measuring productivity and quality
- The resource transformation process
- Operations planning and control
- The factors affecting productivity and quality
- The basic tools for improving productivity and quality
- Total quality management
- Business process reengineering
- The concept 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 elements of the transformation process and describe the operations of an organization 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 organization and the quality of its products or services
- Explain the nature of basic tools for improvement productivity and quality
- Describe the underlying assumptions, key elements and processes, and advantages and limitations of total quality management, business process reengineering, and supply chain management

H. Management Ethics

The Candidate must demonstrate knowledge of:

- The definition of management ethics
- The main ethical theories: consequentialism and non-consequentialism
- Kohlberg's moral development model
- Implications of agency theory, stewardship theory and stakeholder theory
- Manageralism and social Darwinsim
- The range of stakeholder groups, needs and conflicts
- The ethical dimensions of business goals and conflicts
- The ethical programme
- The processes and ethical guidelines in decision-making
- The ethical considerations relating to the external environment
- The differences between law and ethics

The Candidate should be able to:

- Explain the rationale for ethics in the workplace
- Identify the roles and functions of the different groups of stakeholders
- Contribute to the development of a code of conduct for employees
- Establish procedures for reporting and investigation unethical behaviour

- Evaluate the reward system with reference to ethics
- Analyze critical ethical issues for decision making
- Use checks-and-balances, incentives and communications to manage ethical behaviour
- Manage staff and departmental activities in accordance with the code of ethics
- Communicate effectively and ethically
- Manage social responsibility in the workplace
- Implement ethical requirements in workplace

Key Knowledge Areas

A. Nature of Management and Managerial Work

Key Knowledge Areas	**Coverage**
Goals of management	• Importance of management • Productivity, effectiveness and efficiency • Organizational stakeholders • Goals of managers and organizations
Functions of management	• Planning, organizing, staffing, leading, controlling and coordinating
Evolution of management	• Classical theories and approaches • Recent contributions and approaches • The systems approach to management
Managerial skills	• The science and art of management • Managerial skills and the organizational hierarchy: conceptual, technical and interpersonal

B. Managerial Decisions

Key Knowledge Areas	**Coverage**
Management and decisions	• The nature of managerial decisions • Normative and descriptive models
Risk, uncertainty and rationality	• Risk, probability and decision trees • Rationality and bounded rationality
Decision making process	• Problem definition • Generation , evaluation and selection of alternatives
Types of decisions	• Programmed and non-programmed decisions • Individual and group decision making
Creativity and innovation	• The creative process • Obstacles to creativity and innovation

	• The creative manager

C. Planning and Decision Making

Key Knowledge Areas	**Coverage**
Organization goals	• The managerial hierarchy • Mission, goals, objectives, strategies and policies • Hierarchy of goals
Planning and the organizational hierarchy	• Nature of decisions and the organizational hierarchy • Strategic planning and decision making • Planning at the divisional and functional levels
Information and planning	• Information needs of decision makers • The organization as an information system
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: optimization and scheduling

D. Organizing

Key Knowledge Areas	**Coverage**
Elements of organizing	• Definition of organizing; explain six different elements of organizing
Job design	• Design jobs and job specialization
The nature of organization design	• Definition of organization design
Two basic universal perspectives on organization design	• Bureaucratic model and behavioral model
Strategy and organization design	• Levels of strategy and their supporting organization design
Forms of organization design	• Five forms of organization design

E. Leading and Managing People

Key Knowledge Areas	**Coverage**
Individual-organization relationship	• The nature of individual differences • The person-job fit • The Myers-Briggs Framework
Attitudes and perceptional process in organizations	• Work-related attitudes • Perceptual processes • Perception and attribution
Workplace behaviour and organizational effectiveness	• Performance behaviour

	• Withdrawal behaviour • Dysfunctional behaviour
The nature of motivation	• Importance of employee motivation in the workplace
Content, process and reinforcement perspectives on motivation	• Content perspective: the Need Hierarchy approach, the two-factor theory • Process perspective: expectancy theory, equity theory, goal-setting theory • Reinforcement perspective: kinds of reinforcement in organizations • Implications of different perspectives on motivation
Organizational reward systems in motivation	• Merit reward systems • Incentive reward systems • Team and group incentive reward systems
The nature of leadership	• The meaning of leadership • Leadership and management • Leadership and power
Different approaches to leadership	• Generic approaches: leadership traits and behaviour • Situational approaches: LPC theory, Path-goal theory, Vroom's decision tree approach • Others: charismatic and transformational leadership

F. Controlling

Key Knowledge Areas	**Coverage**
The nature of control	• The purpose of control, types of control and steps in the control processes
Operational control	• Preliminary and screening control
Structural control	• Budgetary control and other financial control tools
Strategic control	• The relationship between strategy and control
Managing control in organizations	• Characteristics of effective control • Resistance to control • Overcoming resistance to control

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
Improve productivity and quality	• Factors affecting productivity and quality • Basic tools: operations research, value engineering, work simplification, statistical control and quality circles • Total quality management • Business process reengineering
Supply chain management	• Concepts of value chain and supply chain • Managing the global supply chain

H. Management Ethics

Key Knowledge Areas	**Coverage**
Management ethics	• Aims and objectives of management ethics • Influences on business goals and objectives
Ethical theories	• Ethical theories classified under consequentialism • Ethical theories classified under non-consequentialism • Concept of virtue, justice and categorical imperative
Kohlberg's model	• Moral development stages • Comparison with motivation theories: Maslow, Herzberg, MacGregor, Handy • Impact on decision-making processes
Agency, stewardship and stakeholder theory	• Understanding of the theories • Their implications in the workplace, e.g. barrier to communication • Concepts of: corporate governance, Confucian values, ownership and control, asymmetry of information, cultural traditions, underdeveloped legal regime, ICAC's roles
Stakeholders	• Internal and external stakeholders • Functions of stakeholders • Employees as stakeholders • Meeting stakeholders' needs and expectations • Managing stakeholder conflicts
Managerialism and social Darwinism	• Challenges and opportunities from globalization • Practices and implications of

	managerialism: product safety, health and safety in the workplace, customer services, preventive maintenance
Ethical Issues	• Principles of social responsibility for organizations • Individual responsibility
Ethical programme	• Corporate culture, staff ethical training programme, empowerment, communication, code of conduct, and ethical audit committee
Business law	• Main elements of law relating to employment contracts, sales contracts and agencies • Problems of externalities

Core Reading

Griffin, R.W. (2005) Management, 8th ed., Houghton Mifflin, New York

References

Teaks, M., Dispenza, V., Flynn, J. & Currie, D., (2004) Management decision-making: towards an integrative approach, FT Prentice Hall, UK.

Weihrich, H. & Koontz, H. (2004) Management: a global perspective, 11th ed., Singapore: McGraw Hill.

Advanced Level

Transport Management Stream

AL 3: Transport Systems and Management

Synopsis

This subject presents a fundamental understanding of the principles of operations systems and management, as applied to 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. Transportation Systems
B. Transport Modes and Operational Characteristics
C. Transport Management
D. International and Local Regulatory Bodies

Standard of Knowledge and Competence

A. Transportation Systems

The Candidate must demonstrate knowledge of:

- The recent concepts in transportation systems
- The basic components in transport systems
- Interrelationships between various components
- The criteria for evaluating transport systems
- The role of humans in a transport system and their interactions

The Candidate should be able to:

- Use the system and component concepts to analyze transport issues
- Identify problems on various basic components of transport
- Examine various activities in the system processes
- Evaluate the strengths and weaknesses of a transportation system

- Discuss the interface between human and transportation systems

B. Transport Modes and Operational Characteristics

The Candidate must demonstrate knowledge of:
- Various modes of transport, in detail
- The operational characteristics of various modes of transport
- The operational system of intermodal coordination

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 transportation
- Evaluate how the characteristics may affect the choice of users

C. Transport Management

The Candidate must demonstrate knowledge of:
- Management functions related to transport systems
- Functions of 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
- Examine the use and effectiveness of various transport management measures

D. International and Local Regulatory Bodies

The Candidate must demonstrate knowledge of the:
- Objectives of setting regulations for public and private transportation
- Reasons for having government involvement
- Functions, aims and activities of various regulatory bodies in transport sectors

The Candidate should be able to:
- Discuss the reasons for setting regulations
- Evaluate the effectiveness of the regulation on transport
- Identify the forms of regulating regimes
- Examine the role of the regulatory bodies on transport

Key Knowledge Areas

A. Transportation Systems

Key Knowledge Areas	**Coverage**

Transportation systems	• Definitions
	• Basic components
	  ➢ Vehicles
	  ➢ Ways
	  ➢ Terminals

System Analysis Process	• Planned routing and scheduling • Communication System

Evaluation criteria for transportation system	• The problem criteria
	  ➢ Energy consumption
	  ➢ Air quality
	  ➢ Equity
	  ➢ Safety
	  ➢ Congestion
	  ➢ Land Use Impact
	  ➢ Noise
	• Other Key Evaluation Criteria
	  ➢ Public and Private Cost
	• The Success Criteria
	  ➢ Reliability
	  ➢ Speed
	  ➢ Convenience
	  ➢ Personal security
	  ➢ Comfort
	  ➢ Consumer freedom
	  ➢ Privacy

Human interaction with transportation systems	• User impacts:
	  ➢ Travel time
	  ➢ Safety
	  ➢ Comfort and Convenience
	• Non-user Impacts:
	  ➢ Environmental concern
	  ➢ Property value
	  ➢ Land Use and Urban Development
	  ➢ Economic Activities
	  ➢ Social Development

B. Transport Modes and Operational Characteristics

Key Knowledge Areas	**Coverage**
Ways and Modes of Transport	• Roads • Railways • Air • Sea • Inter-Modal Coordination (IMCP)

Operational Characteristics	• Speed • Distance • Rate of Flow • Density • Capacity • Operator Cost • Level of Service

C. Transport Management

Key Knowledge Areas	**Coverage**
Management Functions and Policy Formation	• Policy Formulation Process • Implementation Procedures • Functions of Management: ➢ Planning ➢ Controlling ➢ Leading and Directing ➢ Evaluating
The 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 Quality of the Transport Systems • The Full Utilization of Existing Facilities
Transport Management Measures	• Demand Side: ➢ Land Use and Zoning ➢ Communication Substitutes ➢ Traveler 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**
The Reasons for Regulation	• Fundamental Problems with the Market Mechanism: ➢ External Effects ➢ Public Goods ➢ Social Cost ➢ Indivisibility • The 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
The Forms of Regulating	• State Ownership • Licensing or Legal Control • Price Control • Quantity Control • Profit Control
Controlling Bodies	• International and Local Regulatory Bodies of : ➢ Road Transport ➢ Air Transport ➢ Sea Transport

Core Reading

Shaw, S. (1993) Transport: Strategy and Policy. Oxford: Blackwell.

White, P.R. (2002) Public Transport: its Planning, Management and Operation. (4th ed.), London: New York: Spon Press.

References

Faulks, R.W (1999) International Transport: an Introduction to Current Practices and Future Trends. London: Kogan Page

Tolley, R. (1995) Transport Systems, Policy and Planning: A Geographical Approach. Harlow: Longman.

Advanced Level

Transport Stream

AL 4: 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 transportation systems.

This subject covers the various aspects of sustainable transport, including the engagement process of stakeholders in the development of a transportation 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 transportation 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

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 must demonstrate knowledge of the:

- Definition of sustainable development
- Definition of social sustainability
- Definition of economic sustainability
- Definition of environmental sustainability
- Definition of sustainable transportation

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 transportation system
- Define the criteria of a sustainable transportation system
- Define the different indicators that are used to measure or quantify the sustainability of a transportation system

B. Social Sustainability in Transport

1. Governance and policy

The Candidate must demonstrate 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, economic, and land-use development policies
- 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 must demonstrate knowledge of the:

- Definition of a transportation services provider

- Definition of a research and development group
- Definition of an environmental pressure group

The Candidate should be able to:

- Give the definition, aim, role, and influence of transportation services providers on transportation systems
- Give the definition, aim, role, and influence of research and development groups on transportation systems
- Give the definition, aim, role, and influence of environmental and other pressure groups on transportation systems

3. **Influence of technology**

The Candidate must demonstrate knowledge of the:

- Relationship between technology and transportation
- Nature of an intelligent transportation system as a technology for the improvement of transportation systems
- Limitations of technology

The Candidate should be able to:

- State the influence of technology on emissions, resource consumption, and travel behavior
- Identify the different areas of intelligent transportation systems
- Identify different enabling technologies for intelligent transportation systems
- State the effect of intelligent transportation systems on production, working, living, and traveling
- State the limitations of the technology

C. Economic Sustainability in Transport

1. **Costs of transportation**

The Candidate must demonstrate knowledge of:

- Direct costs of transportation
- External costs of transportation.

The Candidate should be able to:

- Determine the difference between short- and long-run cost
- Compare and contrast fixed and variable costs
- Understand average, marginal, and generalized costs
- Explain the effect of scale in estimating the costs of vehicle size and fleet size
- Categorize 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 transportation

The Candidate must demonstrate knowledge of:

- The effect of 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 transportation 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 transportation system
- Extract information, such as consumer's surplus and total system cost, from the plot of the demand and supply curves of a transportation system

3. Transport infrastructure financing and evaluation

The Candidate must demonstrate 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 must demonstrate 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 maximization, of transportation service pricing
- Use the marginal cost pricing approach to price a transportation service
- point out the difficulties of pricing a transportation 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 must demonstrate knowledge of:

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

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

2. Other environmental issues

The Candidate must demonstrate knowledge of:

- The noise that is caused by traffic
- The vibration that is caused by traffic
- The safety issues that are raised by traffic
- The effect of transportation on amenities and severance

The Candidate should be able to:

- Define the 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 transportation noise
- Understand the effect of noise on the community, health, and sleep patterns
- Understand the principles of different types of noise abatement measures
- State the cause of and mitigation measures for vibration that is caused by traffic
- 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
- Describe a method for the assessment of amenity and severance
- Describe the impact of transportation amenities and severance and measures for their mitigation

3. Assessment of environmental impact

The Candidate must demonstrate knowledge of:

- Evaluation techniques for the assessment of environment impact

The Candidate should be able to:

- Understand the principle and usage of different evaluation techniques (avoided costs, contingent valuation, and travel cost model)

4. **Fuels and cleaner vehicles**
   The Candidate must demonstrate 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 and give their future prospects
   - 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 dimensions
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 ethic
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 renewable and non-renewable resources • Disposal of human waste

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

B. Social Sustainability in Transport

1. Governance and policy

Key Knowledge Areas	**Coverage**
Global Perspectives	• Global organizations 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
Local Perspectives	• Role of technology policy • Role of economic and fiscal policy • Role of physical land-use and development policy
Barriers	• Resources barriers • Institutional and policy barriers • Social and cultural barriers • Financial constraints • Legal barriers • Side effects • Other (physical) barriers
Governing Regimes	• Nationalization of transport • Privatization of transport • Regulated and deregulated markets

2. Engagement processes of stakeholders

Key Knowledge Areas	**Coverage**
Transportation 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
Intelligent Transportation System (ITS)	• Different areas of an ITS • ITS-enabling technologies • Effect of an ITS
Limitations of Technology	• Less socializing 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 Cost	• Short-run vs. long-term cost • Fixed and variable cost • Average and marginal cost • The effect of scale • Responsibility for cost • Generalized cost
External Cost	• 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 elasticities of different transport services, by time • 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	• Principle and formula • 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 • 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
Vibration	• Causes of vibration • Mitigation measures
Safety	• Different kinds of risk • Risk assessment • Cost of risk • Public policy
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**
Evaluation Techniques	• Change in customer and producer surplus • Avoided costs • Averting behavior • 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 Impact on the Environment	• Gasoline • Diesel
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

Core Reading

Banister, D. (2005) Unsustainable Transport. Routledge, London; New York.

Button, K. (1993) Transport Economics. Edward Elgar Publishing Company, England; Vermont.

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

References

McQueen, B. and McQueen, J. (1999) Intelligent Transportation System Architectures. Artech House, Boston; London.

Nelson, P.M. (1987) Transportation Noise Reference Book. Butterworth & Co. (Publishers) Ltd., England.

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

Powell, T. (2001) The Principles of Transport Economics. PTRC Education and Research Services Ltd. London.

Advanced Level

Transport Management Stream

AL 5: 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 organization and machinery in relation to transport strategy 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 analyzed. 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 must demonstrate knowledge of:

- The organization and machinery of government in relation to transport
- The influence of politics on transport
- The importance of transport in public budgetary expenditure
- The alternative ways of funding transport

The Candidate should be able to:

- Identify the transport-related government bodies and arms
- 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

B. Transport Strategy and Policy Formation and Implementation

The Candidate must demonstrate knowledge of:

- The top-down and bottom-up approaches
- What is public governance?
- What are the common transport problems?
- What are the common measures used to tackle transport problems?
- What are the transport policy objectives?

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 must demonstrate knowledge of:

- The rationale for transport planning
- What is the transport planning process?
- What is the traditional four-stage transport planning model?
- What are the key advantages and limitations of the above approach?

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 must demonstrate knowledge of:

- The nature of transport infrastructure as a form of social overhead capital
- What are the different impacts of transport on the economy?

- What are the different impacts of transport on the spatial structure of a society?
- What roles can transport policy play as a tool of development?

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

E. Transport, Land-use and Travel Behaviour

The Candidate must demonstrate knowledge of:

- Why is transport and land-use closely related?
- How land-use patterns affect people's travel behaviour
- What are the major trends and challenges associated with the changing land-use patterns in many developed cities?

The Candidate should be able to:

- Describe the interrelationships between transport and land-use
- Understand the needs for integrated transport and land use planning
- Analyze 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
- Analyze the implications of changing land-use patterns, for example, suburbanization 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

Key Knowledge Areas

A. Government and Politics in Relation to Transport

Key Knowledge Areas	Coverage
Organization and machinery of government	• Relevant Bureaus • Relevant Departments • Central and local authority • Statutory and non-statutory bodies
Politics	• Political process

	• Public participation • Non-governmental organization • Consultation and partnership
Pubic expenditure	• Government budgetary consideration • Funding methods • Economic returns vs. financial returns • Private and public partnership

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 • Government regulations • Traffic management • Demand restraint
Transport policy objective	• Recent transport policy objectives • Relationship with the general government policy objectives

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 • 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 common-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)
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 polarization of development in the most developed areas only
Transport policy prescriptions	• Positive and active role, with new transport infrastructural development taking a leading role in creating and opening up development opportunities • Negative and passive role, with new transport infrastructural development seen as causing further congestion problems and

	should only follow development

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
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 suburbanization and spatial sprawl • The associated major trends and challenges, including more and longer trips

Core Reading

Button, K.J. and Stough, R. (eds.) (c1998) Transport Policy. Edward Elgar, Chelteham.

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

References

---. (1980-1985) Transport Policy and Decision Making (v1 – v3) . Martinus Nijhoff, The Hague, Boston.

Banister, D. (ed.) (1995) Transport and Urban Development. Spon, London.

Banister, D. (c2002) Transport Planning (Second Edition). Spon, London.

Hong Kong (China). Transport Department. (2004) Transport Planning and Design Manuel, Volume 1. Hong Kong Government, Hong Kong.

Advanced Level

Logistics Management Stream

AL 6: 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 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 transportation systems. Candidates are expected to appreciate and understand the evolution of international trade, globalisation of 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 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 must demonstrate knowledge of:

- The concept of transport in modern society
- The function of different transport modes related to freight transportation

- Decision models for transportation services and networks

The Candidate should be able to:
- Design combined transport modes to suit service needs
- Decide the locations of transport hubs-and-spokes, warehouse and distribution centres, and service network

B. Business Environment and Management of Global Supply Chain

The Candidate must demonstrate knowledge of the :
- Organization and behaviour of individuals and groups within an organization; 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 transportation

The Candidate should be able to:
- Plan and manage an effective organization
- Prepare a budget and to use a financial statement as a tool to evaluate the financial performance of an investment
- Understand legal liability in relation to contract and transportation
- Set strategies to meet sales/marketing needs and design campaigns to satisfy customers' requirements

C. Procurement, Warehousing, Inventory and Operations Management

The Candidate must demonstrate 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 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 must demonstrate 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 must demonstrate knowledge of:

- An understanding of the macro-economics – labour, output, money and foreign exchange market that are influenced by major economies and markets
- Division of labour, world production centres and consumers' markets
- Specialisation in commercial activities – improved efficiency. 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

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

The Candidate must demonstrate knowledge of the:

- Emergence of shipping consortia and airlines alliances: the rationale of code-sharing and risk-sharing, and expand 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 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 must demonstrate 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.

The Candidate should be able to:

- Apply new technologies in daily business to best suit the requirements
- Observe technology innovations and to make changes

H. Future Challenges and Issues

The Candidate must demonstrate knowledge of:

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

The Candidate should be able to:

- Make adjustments or corrections to accommodate the changes in business

Key Knowledge Areas

A. Transport and Supply Chain Management

Key Knowledge Areas	Coverage

Transport function – economic catalyst	• Transport functionality – movement and storage
	• Transport principles
	  ○ Economy of scale
	  ○ Economy of distance
	• Shippers' and carriers' decisions

Modal characteristics and choice of mode	• Transport modes and supply chain performance
	  ○ Lot size
	  ○ Safety inventory
	  ○ In-transit inventory
	  ○ Transport costs and time

Location and Network decision	• Direct shipment • Milk runs • Distribution centre • Cross-docking • Centralized vs. decentralized facilities • Inventory aggregation • Temporal aggregation

B. Business Environment and Management of Global Supply Chain

Key Knowledge Areas	Coverage
Management of organization	• Organization development • Functional aggregation • Collaborative relationships management • Developing trust
Finance and accounting	• Budgeting

	• Cost revenue analysis • Contribution approach • Net-profit approach • Activity-based costing
Strategic management	• Collaborative relationship • Vertical to virtual integration
Conventions related to international transport, Hague Rules; COGSA; Warsaw Convention etc.	• Legal implication and liability as per airway bill and bill of lading • Insurance for transit goods and international transport

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 & planning	• Cargo and material handling and storage • Warehouse planning • Warehouse strategy and functionality • Warehouse operations
Operation management	• Inventory management • Transportation 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

E. Globalisation of World Economy and Supply Chain Strategy

Key Knowledge Areas	**Coverage**

Globalisation and division of labour	• Global 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	• Specialization in logistics functions: emergence of SCM and 3PLs • Logistics function: a tool for sales and marketing • Global networks

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

Key Knowledge Areas	**Coverage**
Shipping consortia and airlines code-sharing	• Service frequency and network, 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 trend: 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 • Transportation Management System • Warehouse Management System
Web-based technology	• Strategic collaboration • Round-the-clock operation • Market integration

	• Web-based EDI and the use of XML • Web-based service providers: GTNexus, INTTRA, Tradelink and DTTN etc.

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

H. Future challenges and issues

Key Knowledge Areas	**Coverage**
Future challenges	• Green distribution and environmental management system • Globalization 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 • The application of Game theory • Interdependence behaviour
Developments in China Mainland	• Time-definite vs. time critical logistics • Opportunities for cooperation and coordination between the Mainland and Hong Kong • Transport infrastructure, institutional arrangement and other considerations

Core Reading

Chopra, S. and Meindl, P. (2003). Supply Chain Management: Strategy, Planning and Operation *Second Edition.* Prentice-Hall Inc., New Jersey.

Christopher, M. (1998). Logistics and Supply Chain Management. Financial Times, Prentice-Hall, New Jersey.

References

Brodie, P. (1994a). Commercial Shipping Handbook. UK: Lloyd's of London Press

Brodie, P. (1994b). Dictionary of Shipping Terms Second Edition. UK: Lloyd's of London Press.

Simchi-Levi, D., Simchi-Levi, E. and Kaminsky, P. (2000). Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies. McGraw-Hill, Boston.

Advanced Level

Logistics Management Stream

AL 7: Logistics Management

Synopsis

Firms competing in the new millennium face a number of harsh competitive realities. First, manufacturing a quality product is no longer sufficient by itself to engender customer loyalty. Companies must consistently deliver that product when and where their customers demand it, at a reasonable price. Second, 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 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 potential global. 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 woven together to form an integrated logistics system;
3. to know the knowledge and skills to turn their corporate logistics activities into a sources of sustainable competitive advantage in the global business arena.

Outline Subject Content

A. Introduction to Logistics
B. Global Logistics Environment
C. Elements of International Trade
D. Movement of Goods
E. Managing the Inbound Logistics and Purchasing in the Organization
F. Managing the Outbound Logistics
G. Customer Care and Service Quality
H. Organizing for Logistics Effectiveness

Standard of Knowledge and Competence

A. Introduction to Logistics

The Candidate must demonstrate knowledge of the:

- The components in a logistics system
- Total cost concept and trade-offs in logistics management
- Reasons for the growing concern on logistics and supply chain management

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

B. Global Logistics Environment

The Candidate must demonstrate knowledge of:

- Aspects and recent developments of the international business environment
- Various external and internal impacts on the logistics sector
- Various types of risk in supply chain operations
- Various related international organizations and conventions
- Structure and characteristics of freight agents or third party contractors

The Candidate should be able to:

- Examine the impact of the changing business environment on the logistics sector
- Identify external and internal impacts on global logistics services providers
- Evaluate various type of risks on supply chain management
- State the source of legislation and main legal requirements for operations
- Illustrate the role of various related international organizations and conventions
- Portray the characteristics and structure of freight and transport industries

C. Elements of International Trade Logistics

The Candidate must demonstrate knowledge of:

- Characteristics, advantages and disadvantages of various modes
- Legal requirements for packaging, handling and labeling for safety of goods movement
- Various rates and charges determination regimes
- General knowledge of freight insurance
- functions of main documents used in commerce
- general knowledge on customs processes and documentation
- the requirement for international journey planning
- role of information and the type of information needed in different modes

The Candidate should be able to:

- Evaluate the suitability of different modes in different circumstances
- Compare different modal advantages for different journeys and cargo
- Distinguish among various rating and charging methods
- Understand the practices of trade documents, freight insurance and customs processes
- Recognize the importance of information needed in logistics processes

D. Movement of Goods

The Candidate must demonstrate 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
- 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 these 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
- Explain the major components, functions and activities of different modes of transport
- Examine the requirements of for the efficient movement of goods

E. Managing the Inbound Logistics in the Organization

The Candidate must demonstrate 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 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 technique may help to improve materials management

F. Managing the Outbound Logistics

The Candidate must demonstrate knowledge of:

- The recent developments in the retail market and the requirement on 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 the recent developments in retail market distribution and outbound logistics
- Identify the main contributions and elements in various logistics strategies
- Describe the concept 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

G. Customer Care and Service Quality

The Candidate must demonstrate 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 a good quality management

H. Organizing for Logistics Effectiveness

The Candidate must demonstrate knowledge of:

- Concepts, components and development of an optimal logistics organization
- Strategic consideration for logistics organizational effectiveness
- Methods and techniques on measuring the effectiveness of logistics organizations
- Elements and considerations of the "best" organization

The Candidate should be able to:

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

Key Knowledge Areas

A. Introduction to Logistics

Key Knowledge Areas	Coverage
Components of a Logistics System	• Purchasing • Information maintenance • Product scheduling • Materials handling • Inventory • Warehousing • Order processing • Transport • Customer service
Total cost concept: logistics trade-offs	• Look at the system as a whole • Trade-off between logistics elements • Balance between logistics activities
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	• Trends in global trade (eg. NAFTA)

logistics	• Mass customization • Environmental concerns • JIT concept • Information technology advancement • Electronic commerce

B. Global Logistics Environment

Key Knowledge Areas	**Coverage**

International Business environment: the concept and organization of International Trade	• The concept and organizations of international trade
	  ○ Strategic trade theory, International trade policies
	  ○ Inter-country trading and market access
	  ○ Multinational corporation (MNC): role and influence
	  ○ Government and industry interface
	• External impacts
	  ○ International business strategy
	  ○ Environment appraisal
	  ○ Government and inter-government organizations
	• Internal impacts
	  ○ International business performance
	  ○ Supply chain strategy
	  ○ Factors: strategic, managerial, organizational and marketing

Potential risk inherent in the international supply chain	• Risks: operational, financial, political, economic, commercial • Risk management and reduction
National and international legislation	• Sources of legislation • Main legal requirements for operation

International organizations and business organizations	• Role and functions of IMO, IATA, ICAO and other relevant organizations
	• Provisions of ATP and ADR and other relevant conventions
	• Structure and organization of the freight industries
	  ○ Characteristics of national freight industry
	  ○ Organization 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

C. Elements of International Trade Logistics

Key Knowledge Areas	**Coverage**
Modal choices relating to types of demand and goods	• modal characteristics • modal advantages and disadvantages for different journeys and cargoes
Packaging, handling and labeling requirements	• legal requirements for safety of people, goods and the environment
Rates and charges	• Costing systems and various types of costs • Cost-allocation and recovery • Profit requirement • Rate quotation schedule • Time and distance-based charges • Charge-out rate
Documentation	• Function of main documents used in national and international commerce
Freight insurance	• GIT insurance requirements • Hague and Hamburg Rules • CMR • Incoterms
Customs processes	• Requirements for DTI / customs input, local control, manual and period entry, simplified procedures, pre-entry, low-value procedure and non-statutory procedure • Use and types of permits • Use and types of carnets: TIR / ATA
International journey planning	• Intermodal transport operations • Containerized cargo • Accompanied and unaccompanied movements
Information needs	• Role of information • Types of information relating to drivers, vehicles, loads, transport modes and customers

D. Movement of Goods

Key Knowledge Areas	**Coverage**

Goods to be moved	• How characteristics of goods impact their handling
	  ○ Types of goods
	  ○ Special equipment and staff training
	  ○ Weight and Dimensions
	  ○ Transit regulations

	○ Legislative controls ○ Handling methods and methods selection • Safety and security • Utilization methods ○ Types ○ Advantages and disadvantages
Origins, destination and routes	• Sources and destination ○ World 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 and resources required • Planning • Various types of controls • Documentation involved • Processes and constraints • Information flow and exchange ○ Importance ○ Real-time • Third parties involved

E. Managing the Inbound Logistics and Purchasing in the Organization

Key Knowledge Areas	**Coverage**
Growing importance of inbound logistics	• Globalization • Demographic forces • Information and communications • Cost saving (excess production) • Risk reduction • Leveraging resources
Inbound logistics activities	• Customer service • Transportation

	• Inventory management • Warehousing and storage • Maintenance • Information management • Salvage and waste disposal • Production

Purchasing	• Goals of purchasing
	• Purchasing tasks
	  ○ Supplier selection
	  ○ Quality management
	  ○ Forward buying
	  ○ 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
	  ○ MRP
	  ○ DRP
	  ○ JIT

F. Managing Outbound Logistics

Key Knowledge Areas	**Coverage**
Retail Market	• Control over secondary distribution • Restructuring of retailer's logistics systems • Quick response • Rationalization of primary distribution • Supply chain management • Efficient consumer response (ECR) • Recycling / reuse of packaging material and handling material
Distribution Strategy and Network	• Formulating logistics strategy • Integrating the logistics channels
Role of third party logistics providers	• Cost reduction through specialization • 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 relationship

G. Customer Care and Service Quality

Key Knowledge Areas	**Coverage**

Customer Service	• Service sector organization
	  o Generic features
	  o Specific issues related to transport / logistics organizations
	• 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 organizational 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	• Role 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

H. Organizing for Logistics Effectiveness

Key Knowledge Areas	**Coverage**
Components of an optimal logistics organization	• Structure and technology • Organizational characteristics • Environmental characteristics • Employee characteristics • Managerial policies and practices
Improving logistics organizational effectiveness	• Strategic goal settings • Resource acquisition and utilization • Performance, environment, and communication processes • Leadership and decision making • Organization, adaptation and innovation
Developing an optimal logistics organization	• 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 organization	• Cost-to-sales ratios
	• Predetermined standards
	• Logistics management personnel
	  ○ Line management ability
	  ○ Problem-solving ability
	  ○ Project management ability
	• 360 degree evaluation

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

Core Reading

Gourdin, Kent N. (2006) Global Logistics Management: a competitive advantage for the 21st Century, Oxford: Blackwell Publishing

Kee-Hung Lai and Edwin T.C. Cheng, 2006, Just-in-time Logistics, An Introduction, McGraw Hill

References

John J. Coyle, 1984, The Management of Business Logistics, West Publishing Company

John J. Coyle, Edward J. Bardi and C. John Langley Jr., 2003, The Management of Business Logistics, A Supply Chain Perspective, Thomson

Paul R. Murrhy Jr. and Donald F. Wood, 2004, Contemporary Logistics, Prentice Hall

Ronald H. Ballou, 2004, Business Logistics / Supply Chain Management, Prentice Hall

Advanced Level

Logistics Management Stream

AL 8: 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, warehouse, 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 organizations.

Outline Subject Content

A. The 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. The Role of Warehousing in Logistics Management

The Candidate must demonstrate knowledge of:

- The role of warehouses in logistics management
- Basic operations of warehouses
- The 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 must demonstrate 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 must demonstrate knowledge of:
- Various activities in warehouse operations
- Various systems for item picking in warehouses
- Principles in receiving and put-away

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

D. Materials Handling Equipment and Packaging

The Candidate must demonstrate 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 must demonstrate 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 technology
- Comment on the suitability of various types of enabling technologies for warehouse management
- Evaluate the impact on 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 centers • Warehousing tasks • Warehousing functions
Reasons for Storage	• Transport-production cost reduction • Coordination of supply and demand • Production needs • Marketing considerations
Uses of warehouses	• Holding • 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	• Randomized 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 palletizing systems • Downstream palletizing • 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 optimization • Pick from storage • Pick task simplification • Order batching • Slotting optimization • Pick sequencing
Utilizing and shipping	• Container optimization • 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

D. Materials Handling Equipment and Packaging

Key Knowledge Areas	Coverage
Manual systems	• Storage and order-picking equipment • Storage racks • Bin shelving systems • Modular storage • Transportation and storage equipment
Automated systems	• Automated storage and order-picking equipment • Carousels (horizontal and vertical) • Automated guided vehicle (AGV) systems • Robots • Shipping automation • Computerized documentation
Functions of packaging	• Marketing functions • Logistics functions: containment, protection, apportionment, utilization, 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 • Electronic data interchange (EDI) • Transportation management systems (TMS) • Interface to Enterprise Resources Planning (ERP) systems
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 buy versus build decision issues • WMS impacts analysis • WMS implementation

Core Reading

Edward H. Frazelle, 2002, World-Class Warehousing and Materials Handling, McGraw Hill

James R. Stock and Douglas M. Lambert, 2001, Strategic Logistics, McGraw Hill

References

John J. Coyle, Edward J. Bardi and C. John Langley Jr., 2003, The Management of Business Logistics, A Supply Chain Perspective, Thomson

Kee-Hung Lai and Edwin T.C. Cheng, 2006, Just-in-time Logistics An Introduction, McGraw Hill [ISBN: 007 – 125583 – 4]

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