

NEW LEVEL 4 TRANSNATIONAL QUALIFICATIONS IN COMPUTING, BUSINESS, E-COMMERCE AND DESIGN



ENCOURAGING MOBILITY THROUGH ACCREDITATION IN
PORTUGAL, SPAIN AND THE UNITED KINGDOM

1998 - 2001

Supported by the European Union



Leonardo da Vinci





PREFACE

LEONARDO PILOT PROJECT UK/98/1/77003/PI/1.1.1A/FPI

The International Office of Basingstoke College of Technology, Basingstoke, United Kingdom, has prepared this report of work undertaken by the project partners in developing vocational qualifications for mutual accreditation by three Member States.

The existence of mutually accredited qualifications will greatly assist the mobility of young people because, despite the easy availability of comparative tables, there is little knowledge by employers of the qualifications of any country other than their own.

This work has involved all the partners in Portugal, Spain and the United Kingdom and has been a genuinely international project, with each country supervising the research and development for one of the subject areas.

Indeed, the first page of this report is the most appropriate place to emphasise the strong links and effective working relationships established and maintained by this large partnership since the application to Leonardo da Vinci was prepared in 1997. In nearly four years since first contact, strong working relationships have been established and friendships too, based on the mutual respect and understanding that springs from working together towards a single, worthwhile goal.

Equally useful, in addition to the referenced work of the project, there has been a sustained international exchange of wider information and expertise between the partners, particularly concerning information and learning technology, pedagogy, assessment, work placements and other matters directly related to establishing and maintaining a transnational, vocational training programme.

Now that the theoretical work has been completed, the partners look forward to co-operating in the future to implement the programmes detailed here. Ultimately we believe they will be of great help to young people, providing the skills and developing the personal confidence needed to cross borders and find employment in any part of the European Union.

My thanks go to everyone who contributed to this project and the preparation of the report. However, particular mention should be made of Martin Staniforth for translation services and proof reading, Patricia Semple for administration and the drafting of the comparisons of the education systems, Paolo Balistrieri for the comparison between the Business syllabuses and Enrique Llacer for the comparison between the Computing syllabuses and the remarkable demonstration of how each unit of a mutually accredited programme could actually be taught in the crowded timetables of modern schools.

Alan Gwyer
Project Manager

Basingstoke College of Technology
United Kingdom

Monday, 10 September 2001

INTRODUCTION TO THE PROJECT

THE CONTEXT OF THE PROJECT

Our starting point for this project was in 1996 when Basingstoke College of Technology welcomed six students from Escola Viticultura e Enologia da Bairrada, Portugal for a work experience programme. Several students spoke excellent English and wished to find work in the UK. However, at the end of their placements they found that employers simply did not understand or recognize their Portuguese qualifications.

To help with explaining things to sympathetic employers we examined the content of the courses the students were following in their own schools and found a high degree of correlation in the content of Portuguese and UK syllabuses, particularly in computing and business studies. It was immediately clear that if we could develop a new qualification in each subject that included all the material that the national agencies consider important and was also mutually accredited in each country, the mobility and employability of these young people would be greatly enhanced.

The promptings of our experience were strengthened by research into the labour markets in Portugal, Spain and the UK. Employers, chambers of commerce and sector training organisations in each country were all found to be reporting a need for more mobile, better qualified staff with the vocational skills needed in fast changing and developing economies, particularly in technology, information technology, business and management.

Additionally, just as we were preparing the application, the European Jobs Summit, held in Luxembourg in November 1997 highlighted the problem of skills shortages and focused on issues crucial to employment growth, such as mobility. Less than 2% of the working age population in Member States is from other EU Member States and initiatives are needed to give people the confidence and means to find work in a country other than their own.

PRE-PROJECT ACTIVITIES

During the application stage in 1997/8, Basingstoke College of Technology held meetings with each prospective school partner to share experience, discuss how new transnational qualifications could meet the needs of young people and employers and agree roles. Official meetings also took place with EDEXCEL, the Department of Education in Portugal and the education departments in the autonomous regions of Galicia and Catalunya. Each school Partner considered the feasibility of the project and tested the idea with local employers and associated organisations.

In effect, this early work was a valuable cross-sector consultation that gave the Partnership confidence in achieving its aims and objectives. The discussions allowed the broad outline of the new qualifications to be defined and for agreement to be reached that they would:

- ★ Combine the best features and practices of the several national systems
- ★ Be able to be studied and accredited in several languages
- ★ Be mutually recognised by awarding bodies in each participating Member State
- ★ Meet vocational and academic requirements so as to be fully acceptable for entry to employment and university in each partner country
- ★ Feature learning styles that encourage teamwork, flexibility and continuous updating
- ★ Provide access to the key skills of literacy, numeracy, ICT and language training.



THE PARTNERSHIP

A large number of further education institutions, accrediting bodies and employers' organizations in Portugal, Spain and the UK, came together to form the inter-sectoral transnational partnership that has delivered this project. Partners were contacted via the Departamento do Ensino Secundário (DES), Portugal, the Leonardo Office in London and the existing Spanish contacts of Basingstoke College of Technology.

A particularly positive achievement of this project during the last three years has been the enduring, co-operative and genuinely transnational working relationships established between the partners in each of the participating Member States. In practical terms this has meant that meetings have been well attended and work completed as quickly as was compatible with consultation procedures, research, staffing availability, reliance on the schedules of other agencies and the need to maintain high quality.

Each partner in each Member State remains committed to securing the approval of the new qualifications by the appropriate accrediting body and to implementing these programmes with an initial group of students

The full list of partners is provided at the end of this section.

MANAGEMENT AND METHODOLOGY

Since the approval of the project in 1998, the **Transnational Management Committee** has been responsible for its overall direction. The Management Committee has representatives from each school partner and has met once in each participating Member State. During the last two years the Committee has agreed policies, allocated responsibilities and resources, monitored progress, issued reports, considered extension of the project to other subject areas and ensured dissemination.

An exciting aspect of this project has been its involvement with the development of new Level 4 vocational qualifications in Portugal. In 1999 the Departamento do Ensino Secundário (DES) announced approval for new vocational qualifications at Level 4 and representatives of DES attended the transnational meeting of the project held in Lisbon in November. At this meeting, at the invitation of the DES, the Committee agreed for the project to focus its research on Level 4 vocational qualifications and to extend the subject areas to include the fast developing and employer relevant area of E-commerce and Logistics.

The Management Committee has now reviewed and approved the draft international programmes in each of the subject areas developed by the transnational **Subject Working Groups**. These programmes are published in this book.

Three subject groups were formed to work on the new programmes. Each group had a transnational membership and was led by a qualified and experienced senior member of staff from one of the partner colleges, supported by colleagues from colleges in the other two countries.

The responsibilities of each Subject Group were to:

- ★ Research the detailed content of the curriculum in each partner Member State for the national programmes for business, computing, e-commerce and design
- ★ Use the syllabus material identified to design and draft a single, specialist international curriculum at Level 4 with common training modules, in each of the vocational areas of business, computing, e-commerce and design

- ★ Submit the draft programmes for mutual recognition to the appropriate national validating body in each of the Member States - Portugal, Spain and the UK
- ★ Obtain, from the appropriate accrediting bodies, any 'centre approval' necessary to permit each partner college of each Member State to offer the new modules

At the time of the preparation of this publication, the **Evaluation** of the project is continuing. This evaluation is based on:

- ★ Interim and final reports presented to the Leonardo Office in Brussels
- ★ Interviews with and reports from official and company partners

COMPLICATING FACTORS

One of the many difficulties faced by the Partnership has been the very different national approach of Portugal, Spain and the UK to vocational education and the accreditation of courses. In fact, as the comparative report (Appendix 1) reveals, these approaches could not be more different if each country had deliberately set out to establish a distinct and separate system. The profound differences in administrative procedures, educational philosophy and practical approaches to training have complicated the design and implementation of the transnational qualifications and proved a difficult issue for this project. For instance, each country has quite different curriculum priorities and often specifies additional compulsory studies for all students. Where these are nationally focussed (e.g. concerning social issues such as citizenship and integration), they can prove a disincentive for students from other countries.

These national differences have required the project to adopt a strictly practical approach rather than recommend a theoretical model that would stand no chance of

reaching operational status without action by the European Parliament and European Commission. Consequently, the Subject Working Groups have accepted current national programmes, kept them intact and incorporated them into the framework of the new syllabus proposals. The additional material that students will have to study to meet the demands of the awarding bodies in the other countries is included in supplementary units.

There are also different national concepts of learning that vary from an equation with taught hours to self-study leading to the completion of agreed, individualised assignments. These, and different requirements in each national programme to ensure 'breadth' of training, particularly in the requirement that students undertake work experience, have caused problems for project staff.



Because of these fundamental differences it is no surprise that the assessment procedures are very different in each country. Owing to the time constraints of this project, assessment differences have had to be bridged by the proposal that students follow the new courses in addition to their normal national programme. Even where there is overlap between the content of the national programmes, students will have to complete additional assignments to meet the assessment requirements of each country, but the amount of additional work will be small in comparison to the benefits in mobility that the qualification will bring.

Another difficult matter has been language policy. EDEXCEL in the UK offers some flexibility in the submission of assignments in different languages but this is more constrained (especially for Portuguese) than it was a few years ago and special arrangements will be necessary.

Assignments submitted for assessment to the authorities in Spain or Portugal will have to be in the national language. Students in each country will therefore have to study languages in order to take advantage of the mobility conferred by these new qualifications.

A further complicating difference is the existence (or non-existence) of official training structures such as apprenticeship. Where such structures exist, as in Spain and Portugal, compulsory work experience is more likely to feature in the syllabus requirements even though they greatly increase the number of student hours and the time taken to complete the qualification. This may cause problems for UK centres where students are trying for international accreditation.

All these differences have greatly impacted on the process of designing of the new syllabuses. In fact there is no easy fix to any of these issues and they are proving more of a hurdle to securing transnational accreditation than the content of the subject units themselves.

PARTNER ORGANIZATIONS

Organization	Contact person	City	Country
Conselleria de Galicia	Jose Luis Mira Lema	Santiago	Spain
Generalitat de Catalunya	Justo Fonseca Gil	Barcelona	Spain
IES Ribeira do Louro	Amador Ordóñez	O Porrino	Spain
Centro de Estudios Profesionales CEU	Eugenio Ubieta	Madrid	Spain
Centro de Estudios Profesionales-CEU (Sevilla)	Francisco Guzmán	Sevilla	Spain
Abat Oliba - Centre d'Estudis Formatius Superiors	David Chilláron Cortizo	Barcelona	Spain
Escola Profissional Magestil	Maria Celeste Lé de Matos	Lisboa	Portugal
EVEB	Eng. Adriano Aires	Anadia	Portugal
EPTOLIVA	Rogério Graça	Oliveira do Hospital	Portugal
EPPU	Luis dos Santes Pires	Bragança	Portugal
Escola de Comércio de Lisboa	Ana Penim	Lisboa	Portugal
Comissão Vitivincola Bairrada	José Pedro Corte-Real	Anadia	Portugal
Câmara Municipal de Bragança Eng.	Jorge Nunes	Bragança	Portugal
Câmara Municipal de Oliveira do Hospital	Carlos Alberto de Moura e Brito	Oliveira do Hospital	Portugal
EDEXCEL	Michelle Evans	London	UK
J. Sainsbury (Distribution) plc	Dave King	Basingstoke	UK
Oxoid Plc	Nigel Johnson	Basingstoke	UK
Hampshire TEC	Simon Bowes	Fareham	UK

SUBJECT WORKING GROUP PARTNERS

BUSINESS

1. Overall composition of the business working group

Lead Colleges

Escola de Comércio de Lisboa

IES Ribeira do Louro –
O Porriño

Member colleges

Abat Oliba Centre d'Estudis
Formatius Superiors – Barcelona

Basingstoke College of
Technology

Centro de Estudios
Profesionales CEU – Madrid

EPPU Bragança

Escola de Viticultura e
Enologia da Bairrada – Anadia

Centro de Estudios
Profesionales-CEU (Sevilla)

Escola Profissional Magestil

2. Composition of specialist study groups

a. Business studies (Electronics – Portugal)

Lead College

IES Ribeira do Louro –
O Porriño

Member colleges

IES Ribeira do Louro –
O Porriño

Basingstoke College of
Technology

Escola de Comércio de Lisboa

EPPU Bragança

Escola de Viticultura e
Enologia da Bairrada – Anadia

b. Business studies (Logistics – Spain & UK)

Lead College

Abat Oliba Centre d'Estudis
Formatius Superiors – Barcelona

Member colleges

Basingstoke College of
Technology

Centro de Estudios
Profesionales CEU – Madrid

Abat Oliba Centre d'Estudis
Formatius Superiors –
Barcelona

IES Ribeira do Louro –
O Porriño

COMPUTING

Lead College

Centro de Estudios
Profesionales-CEU (Sevilla)

Member Colleges

Basingstoke College of
Technology (BCoT) (UK)

Centro de Estudios de
Formación Profesional
Superior Abat Oliba
(Barcelona)

Centro de Estudios
Profesionales-CEU (Madrid)

EPPU, Bragança

EPTOLIVA, Oliveira do Hospital

E-COMMERCE

Lead College

Escola de Comércio de Lisboa

Member Colleges

Basingstoke College of
Technology (BCoT)

I.E.S. Ribeira do Louro, -
O Porriño

EPPU, Bragança

DESIGN

Lead College

Basingstoke College of
Technology (BCoT)

Member College

Escola Profissional Magestil



INDEX

1. INTRODUCTION

PAGE 3

The context of the project
Pre-project activities
Methodology
The partnership
Subject group partners

2. NEW TRANSNATIONAL COURSES PAGE 9

Business
Computing
E-commerce
Design

3. APPENDICES

PAGE 51

Structure and organization of the education systems in Portugal, Spain (including Catalunya) and the United Kingdom

Comparative study of existing Level 4 qualifications

Business
Computing
E-commerce
Design

Source syllabus material for E-Commerce and Logistics developed by Subject Group led by Escola de Comércio de Lisboa.



SYLLABUS DEVELOPMENT



SUBMISSIONS FOR NEW TRANSNATIONAL QUALIFICATIONS

Following the preliminary work of analysing and matching existing qualifications in Portugal, Spain and the United Kingdom, the Subject Working Groups have developed the following syllabuses for approval by the accrediting bodies in each Member State.

These new syllabuses for Business, Computing, Design and E-Commerce are detailed in this part of the report. Original work undertaken in Portugal in E-commerce and Logistics, led by Escola de Comércio de Lisboa, is included in the Appendix.

Each syllabus aims to unite the programmes from each Member State, so that, if a student followed this new course, he or she would meet the requirements of the national qualifications as well as the requirements of the national qualifications for each of the other two countries.

These Level 4 proposals unite the current qualifications of Spain and the United Kingdom for Business and Computing, and the current courses in E-Commerce in Portugal and the United Kingdom. The Level 4 proposal in Design will provide progression for current programmes in Portugal at Level 3.

Each of these proposals has been submitted to the Departamento do Ensino Secundário in Lisbon as a practical suggestion for the new national Level 4 now being developed.

The proposals have also been submitted to the business and official partners for their consideration and evaluation.

LEVEL 4 QUALIFICATION - BUSINESS

It is envisaged that this 16 Unit qualification will be taught over 2 years.

UNIT 1 MARKETING

Summary of Outcomes

1. Explain the marketing process
2. Explain target marketing and marketing research
3. Analyse the components of the marketing mix
4. Apply the marketing mix to different market segments

Indicative Content

1. Explain the marketing process

Principles and foundations of marketing. Relationships between market and company and role of marketing departments. Satisfying customer wants and needs. External economic factors influencing marketing. Financial constraints on marketing activities. Evolution of the orientation of organisations from production to marketing. Customer and competitor orientation. Information and client care.

2. Explain target marketing and marketing research

SWOT.PESTEL.Stakeholders. Primary and secondary research. Purchasing procedures. Buyer behaviour (demographic, sociological, psychological) Porter's 5 forces. Segmentation, evaluation and choice of segments, positioning.

3. Analyse the components of the marketing mix

7p's of marketing:- Product, benefits, total product, product mix, product life cycle, product strategy. Place, customer convenience, channels of production and distribution, communication, client care and negotiation techniques, technical administrative processes. Price, perceived value, pricing policies, pricing strategies and objectives, competition costs, psychological costs, discriminatory costs. Promotion, awareness and image, effective promotional communication, use of marketing tools, direct/indirect selling, branding/brand loyalty, sales literature. People, Public relations, sponsorships, sales department organisation, sales processes, supervision and administration of human resources, information services organisations. Physical, Integration of the distribution services, transportations, globalisation, EC benefits and risks. Economics of scale. Internet selling. Process, Management of processes, contingency planning, strategic management.

4. Applying the marketing mix to different marketing segments

Consumer markets, fast moving consumer goods, consumer durables, co-ordinated marketing mix to achieve objectives, adding value through service, profit/non-profit making organisations, process of sale and purchase negotiation.

UNIT 2 FINANCIAL MANAGEMENT AND SERVICES

Summary of Outcomes

1. Financial institutions and sectors, insurance sectors
2. Identify the sources of finance available to businesses
3. Explain the use of finance as a resource within the business
4. Analyse the financial performance of businesses
5. Make financial decisions based on financial information available

Indicative Content

1. Financial Institutions and Sectors, Insurance sectors.

Financial and insurance sectors, passive operations of financial and insurance sectors, passive operations of financial institutions, general services of financial institutions, bank services in relationship to government regulation, insurance products and services. Economic and financial analysis of government assets. Official declarations. Purchase of financial products. Disposal of insurance products.

2. Identify the sources of finance available to businesses.

Major sources of finance for all types of businesses retained profits, loans, investment by outside parties, shares, hire purchase and lease schemes, creditors, debt factoring, working capital

The advantages and disadvantages to a business of different sources of finance; suitability of different sources of finance for different purposes, importance of matching of long/short term funds with long/short term projects. Basic means of international payment.

The implications of different types of finance for a business, legal and financial concerns, ownership of assets purchased, implications of failing to repay borrowed money or paying interest. Financial operation calculations.

3. *Explain the use of finance as a resource within the business.*

The costs of different types of finance to the business, opportunity costs of investing money in specific projects, tax implications of different types of finance.

Importance of finance flow within a business, matching appropriate funds to projects/investments, implications of interruptions in funding/finance flow.

The importance of finance and financial information to decision-making within the business, the type of information required by different decision makers.

Different types of asset and liability owned by the business, how assets and liabilities arise for the business, how finance appears on the balance sheet.

4. *Analyse the financial performance of businesses*

The basic structure of main financial statements of a business, purpose of different financial statements, the interpretation of financial statements of different types of business, (note: students are not required here to be able to construct the financial statements), main financial statements – profit and loss account, balance sheet, notes to the accounts, cash flow statements.

Analysing performance using accounting ratios: profitability ratios, liquidity ratios, working capital/efficiency ratios, investment ratios.

Comparisons between financial statements: to market, other companies, industry standards.

5. *Make financial decisions based on financial information available.*

Costing and budgeting decisions: analysis of cost, monitoring budgets and cash flow. Administration of portfolio of assets.

Pricing decisions: optimum selling price, cost-plus pricing, sensitivity analysis.

Investment and project appraisal: basic understanding of appraisal techniques, cost benefit analysis, net present value, payback, internal rate of return, accounting rate of return. Computer methods of financial calculation.

UNIT 3 MANAGEMENT OF HUMAN RESOURCES

Summary of Outcomes

2. *Examine different approaches to management*
3. *Examine the relationship between motivation theories and management practices*
4. *Identify those factors which influence the behaviour of individuals and groups in the organisation*
5. *Evaluate the procedures and practices used for obtaining and retaining suitable employees*
6. *Evaluate legal and ethical issues in employment.*

Indicative Content

1. *Examine different approaches to management.*

Scientific management, classical administration, bureaucracy, human relations approach, systems approach, contingency approach, management authority (autocratic, democratic, laissez-faire)

2. *Examine the relationship between motivation theories and management practices.* The role of the HR department, motivational theories (Maslow's hierarchy of needs. Herzberg's motivation – hygiene theory, Vroom and expectancy theories), motivation and performance and salary.



3. *Identify those factors which influence the behaviour of individuals and groups in the organisation.*

Self and self image, personality and work behaviour, personal work profile, perception and work behaviour, attitude, ability and aptitude, intelligence. Groups and teams, team roles (Belbin) stages in team development, team building, shared beliefs, multi-disciplinary teams. Team dynamics, group norms, decision making behaviour, dysfunctional teams, cohesiveness.

4. *Evaluate the procedures and practices used for obtaining and retaining suitable employees.*

Definition, purpose and processes of human resource planning. Systematic approach to recruitment and selection. Documentation of recruitment and selection procedures. Data protection. Effective induction and training. Planning of systematic training.

5. *Evaluate legal and ethical issues in employment*

Discrimination in the workplace, legislative framework. Equal opportunities. Managing diversity. Positive action approaches to recruitment and selection policies.

UNIT 4 ORGANISATIONS AND ENVIRONMENT

Summary of Outcomes

1. *Identify the key features of the local regional and national economy in which organisations operate.*
2. *Investigate the main external market forces which may influence the organisation.*
3. *Explain the significance of the European dimension for organisations.*

Indicative Content

1. *Identify the key features of the local regional and national economy in which organisations operate.*

Comparisons of types of economic system. The role of the state. Government and social interaction. Political philosophy. Fiscal policy, monetary policy, Government industrial policy. Local, regional and national development issues. Types of organisations, objectives and goals of organisations (profit/non-profit). Stakeholder theory. Regulatory bodies.

2. *Investigate the main external market forces which may influence the organisation.*

Types of market, market forces, supply and demand, Elasticity, economics of scale, labour market, growth of organisations, competition legislation (nationally and EU wide). Cultural environment, customer perceptions, ethical practices.

3. *Explain the significance of the European dimension for organisations.*

The European Commission, Council of Ministers, Directorates General, the European Council, the European Parliament, decision-making process and the reform of community institutions.

European Monetary Union (EMU), European Monetary System (EMS), EU budget – import duties and levies, agricultural import levies, social policy, the Social Chapter, tax harmonisation, Common Agricultural Policy (CAP), regional policy.

UNIT 5 QUANTITATIVE TECHNIQUES FOR BUSINESS

Summary of Outcomes

1. *Use statistical techniques to collect and analyse data.*
2. *Produce forecasts based on formalised procedures.*
3. *Apply quantitative techniques to business situations*

Indicative Content

1. *Use statistical techniques to collect and analyse data*

Data sources: Primary and secondary sources, survey methodology, sample frame, sampling methods, sample error, questionnaire design.

Interpretation of charts: graphical and diagrammatic presentation.

Frequency distributions: generation from raw data, grouping, class boundaries, irregular intervals, histograms, frequency polygons.

Representative values: mean, median and mode, calculation from raw data and frequency distributions, appropriate uses.

Cumulative frequency: tables and charts, calculation and use of interquartile range (IQR) and percentiles.

Measures of dispersion: definition and use of range, IQR and standard deviation, use of spreadsheets.

2. *Produce forecasts based on formalised procedures*

Time series analysis: derivation and use of moving averages, centred trend, seasonal variations and seasonally adjusted data using either the additive or multiplicative model.

Correlation: Scatter graphs, positive and negative correlation, coefficient, significance.

Regression analysis: derivation of regression equation.

Forecasting analysis: preparation of forecasts using time series analysis and regression reliability.

3. *Apply quantitative techniques to business situations.*

Inventory control: periodic review, re-order level, Economic Order Quantity (EOQ), demand re-order timing.

Linear programming: Formulating the problem, graphical solution, tight and slack constraints.

Networking: network diagrams, critical path, slack time, crashing activities, Gantt charts.

Indexes: simple, aggregate, retail price index (RPI), deflation.

UNIT 6 LAW RELATING TO BUSINESS

Summary of Outcomes

1. *Discuss the principles of the law relating to the formation, performance and discharge of commercial and consumer contracts.*
2. *Identify key provisions of consumer protection legislation.*
3. *Explain the key provision of formation, management and dissolution of business units.*
4. *Explain the key provisions of employment protection legislation.*

Indicative Content

1. *Discuss the principles of the law relating to the formation, performance and discharge of commercial and consumer contracts.*

Essentials of valid contract, considering vitiating factors, classification of terms; discharge of contract; standard terms; remedies for breach.

2. *Identify key provisions of consumer protection legislation.*

Consider the rights of the buyer, seller and debtor under relevant legislation, both in the national context and EU context where applied. Consider implied terms in such legislation which seek to give both business/business and business/consumer protection. Identify and apply any provision for the monitoring or any unfair terms and/or exclusion clauses in contracts. Consider protection for the ultimate consumer particularly in relation to defective products. Data protection.

3. *Explain the key provision of formation, management and dissolution of business units.*

Legal considerations influencing choice of business unit; legal requirements relating to the formation of sole trader, partnership and registered companies. Legal considerations of the formation of voluntary associations and charities.

Legal provisions relating to statutory and common law duties of those involved in the management and running of the business units e.g fiduciary duties; principle of agency; vicarious liability. Roles of shareholders, creditors.

Dissolution of the business unit – voluntary/compulsory.

Identification and business formation; management and dissolution.

Role of main regulatory agencies relating to company formation and management.

EU/country specific legislation on Corporate Governance.

4. *Explain the key provisions of employment protection legislation.*

European Union and Country specific legislation in connection with written terms and conditions of employment; time off work, wrongful dismissal/unfair dismissal, redundancy. European Union and Country specific legislation in connection with Collective Bargaining/Collective Redundancies and employee rights on Transfer of Undertakings. European Union/Country specific legislation on Health and Safety at work. Codes of practice and discussion on regulatory bodies e.g Health and Safety Executive; local/regional/national authorities.



UNIT 7 MANAGEMENT INFORMATION SYSTEMS

Summary of Outcomes

1. *Explain the purpose and scope of MIS*
2. *Evaluate the use of MIS as a business management function*
3. *Identify and assess differing IT systems, applications to store, retrieve and analyse information within a MIS*

Indicative Content

1. *Explain the purpose and scope of MIS*

Definitions of MIS: definition of terms, the internal and external sources of information required for effective business management, the differing scales of MIS requirements in differing organisations from sole traders to multinational.

The use of information for: the integration, co-ordination and control of an organisation via differing levels of information, issues of confidentiality, compliance with statutes –Data Protection Acts.

Cascade of Information: needs for information at differing levels of the organisation, paperbased and electronic systems, horizontal and vertical levels of importance, channels of communication.

Internal and external sources: types of data which MIS can provide in planning, controlling the decision process, what is going on with the business, what is going on in the market place.

Evaluation of information: accuracy, relevance, value and importance, the benefits and limitations of MIS.

The impact of the IT revolution: the impact of IT developments and the future role of MIS.

2. *Evaluate the use of MIS as a business management function*

The application of MIS in: management control, decision-making, human resource management, marketing, finance, production, distribution.

The design of MIS systems: MIS planning and systems development to support strategic objectives, day-to-day running, delivery and support of information systems, the evaluation of the MIS system and its impact on organisational performance.

The types of information required: in the strategic, operational and tactical planning process in differing organisations and contacts.

The effective use and selection of information: the demands of data collection, the issues relating to data overload and effective use.

The role of training: the need for training at all levels of the organisation in the collation of data, the use of systems, their benefits and limitations and analysis of data.

3. *Identify and assess differing IT systems applications to store, retrieve and analyse information within a MIS*

Components: capacity and capabilities of computers, types of servers and networks in the cross-organisation communication process.

Practical uses: the practical use of differing software applications to provide information, such as word processing, spreadsheets, databases, financial packages, statistical packages (eg Office, Lotus), internal and external use of electronic communications such as e-mail and the Internet, differing software applications to store, retrieve and analyse.

Consideration: costs, initial installation, maintenance, training.

UNIT 8 BUSINESS STRATEGY

Summary of Outcomes

1. *Examine the process of strategic planning*
2. *Analyse approaches to strategy formulation*
3. *Examine approaches to strategy implementation*

Indicative Content

1. *Examine the process of strategic planning*

Strategic contexts and terminology: role of strategy, missions, visions, strategic intent, objectives, goals, core competencies, strategic architecture, strategic control.

An evaluation of the strategy framework: the reasons why and ways in which corporate planning and strategies are devised – the creation of strategic visions, organisational mission statements, corporate planning and corporate objectives and the relationship with operational planning, objectives and target setting.

Differing approaches to strategy: classical/rational, incremental and emergent approaches to strategy and the benefits and limitations of each.

The planning process: approaches to planning and formulation of strategy and objectives in small, medium and large organisations, formal approach to planning compared to the adhoc approach. Project definition, project rating, project development.

2. *Analyse approaches to strategy formulation*

Environment auditing: Political, Economic, Socio-cultural, Technological, Economic and Legal analysis, (PESTEL). Porter's 5 force analysis, the threat of new entrants, the power of the buyer, the threat of substitutes, competitive rivalry, competition and collaboration.

Current market position: competitor analysis, Boston matrix

Strategic direction: the Ansoff matrix, growth, stability, profitability, efficiency, market leadership, survival, mergers and acquisitions, expansion into the global market place.

The internal audit: benchmarking, the use of McKinsey's 7S framework, SWOT, purpose, scope of activities and markets, product positions, organisational efficiency, distribution methods, operations, finance, policy and procedures.

The formulation of a strategy: realisation of resources to match strategic intent with capability.

3. *Examine approaches to strategy implementation*

The realisation of strategic plans to operational reality: communication – selling the concepts, project teams, identification of team and individual roles, responsibilities and targets, programme of activities, benchmark targets at differing levels of the organisation.

Resource allocation: finance, human resources, materials, time.

Review and evaluation: an evaluation of the benchmarked outcomes in a given time period of corporate, operational and individual targets.

UNIT 9 MANAGEMENT ACCOUNTING

Summary of Outcomes

1. *Explain the concept and measurement of cost within business organisations*
2. *Collect and analyse cost information for use within an organisation*
3. *Prepare budgets and cash flow forecasts for an organisation*
4. *Monitor and control costs and budgets within an organisation*
5. *Investigate computer applications in accounting processes within a commercial environment*

Indicative Content

1. *Explain the concept and measurement of cost within business organisations*

Types: materials, labour, overhead, direct, indirect, fixed, variable, semi-variable, functional

Costing systems: job costing, process costing, contract costing, integrated/non-integrated

Measurement techniques: absorption/marginal/activity-based costing, standard costing, stock valuation methods (FIFO, LIFO, AVCO), payroll data, time sheets, allocation and apportionment of overheads, overhead absorption rates, use of spreadsheets

2. *Collect and analyse cost information for use within an organisation*

Use of standard techniques for cost data collection and analysis: basic understanding of data collection, sampling methods, sampling frame, sampling error, graphical, tabular and diagrammatic presentation, use of index numbers.

(Note: students should already be familiar with the techniques and look at their application for financial purposes).

3. *Prepare budgets and cash flow forecasts for an organisation*

The budgeting process: importance, purpose, links to cost reduction, control of quality and TQM, performance and motivation, productivity, resource utilisation, profitability.

Types of budgeting: fixed, flexible, zero-based, incremental

Preparation of different budgets: subsidiary (functional) and master budgets, cash flow forecasts, effects of key and limiting factors, forecasting techniques, the management of working capital.



4. Monitor and control costs and budgets within an organisation

Cost control: break-even point, margin of safety, contribution analysis, what-if analysis, limiting factors, scarce resources, use of linear regression.

Budget monitoring: importance of monitoring, comparing budgeted to actual figures, investigating differences.

Variations: calculations, establishing causes of variances, taking corrective action.

5. Investigate computer applications in accounting processes within a commercial environment

Creation of forms, use of software to monitor accounts, computer applications in analysing annual accounts and groups of accounts, recording monitoring and retrieval of quarterly and annual returns (eg VAT, taxation).



Types of risk: operational, financial, compliance, pre-analysis of the auditing process.

Management control: the control environment of the business, control procedures (eg segregation of duties, authorisation controls, recording custody).

Fraud detection: common types of fraud, implications of fraud, methods of detection.

UNIT 10 FINANCIAL SYSTEMS AND AUDITING

Summary of Outcomes

1. Analyse the functioning of an organisation's financial systems
2. Evaluate the effectiveness of management control systems
3. Define the nature and purpose of internal and external audit
4. Use appropriate audit techniques in different audit situations

Indicative Content

1. Analyse the functioning of an organisation's financial systems

Systems: an understanding of the operation of manual and computerised (packages, spreadsheets) systems, structure of organisations and their effect on systems, organisation of the accounting function.

2. Evaluate the effectiveness of management control systems

Understanding requirements: general auditing, auditing processes.

Understanding business risk: identification of risks, roles and responsibility in managing risk, ethical implications, (eg code of best practice on corporate governance – 'Cadbury Code').

3. Define the nature and purpose of internal and external audit

Audit roles and responsibilities: formalisation of documents and working papers, relationship between internal and external audit as internal consultants, verification of internal control processes, responsibilities of management. Auditing of an area or groups of accounts, auditing of debtor and creditor accounts, reporting audit findings, management letters.

Auditing environment: legal duties of auditors, statutory audit reports, liability of auditors, legislation and auditing standards and guidelines, definition of proper records.

4. Use appropriate audit techniques in different audit situations

Audit methodologies: system-based audit, auditing IT systems, substantive audit, value for money audits.

Audit planning: scope of audit, materiality, audit risk.

Audit testing: verification techniques, physical examination, re-performance, third party confirmation, vouching, documentary evidence, identifying unusual items, compliance testing, substantive testing, sampling, confidence levels, selection techniques (random numbers, interval sampling, stratified sampling).

UNIT 11 BUSINESS INFORMATION SYSTEMS

Summary of Outcomes

1. *Examine the use of the operating system and file management system*
2. *Examine the use of electronic communications*
3. *Investigate, evaluate and make recommendations on the range of equipment for use within a business*

Indicative Content

1. *Examine the use of the operating system and file management system*
Differences between operating and application software. Personalising the set-up of the desktop --screen colours, screen savers, date and time format, toolbars, icons, macros, templates, changing the default settings, sound.
2. *Examine the use of the operating system and file management system*
Presentation packages – slide shows, speaker and audience notes, timing, transition effects. Internet – use of search engines, downloading, use of bookmarks. Electronic mail – sending, receiving, acknowledgements, replies, attachments, deleting.
3. *Investigate, evaluate and make recommendations on the range of equipment for use within a business*
Hardware – CPU, monitor, printer, CD ROM, speakers, speed, memory, scanner, modem, types of warranties and maintenance. Software – operating, applications, virus, licensing.

UNIT 12 ADMINISTRATION PROCEDURES AND PRACTICES

Summary of Outcomes

1. *Research, prepare and supply information*
2. *Developing new procedures to manage change*
3. *Organising and maintaining business records*
4. *Internal communication systems*

Indicative Content

1. *Research, prepare and supply information*
Process, file and retrieval management, documentation and returns to the public bodies, administrative organisation (1) administrative procedures (1) economic and budgetary management to the public administration.
2. *Developing new procedures to manage change*
Management of change – consultation, negotiation, participation. Managing responsibilities, demarcation of duties, lines of authority, lines of communication.
3. *Organising and maintaining business records*
Recording of minutes and official documents, verification of administrative processes, written communications and records, administrative organisation (2) administrative procedures (2) report writing.

UNIT 13 PURCHASING

Summary of Outcomes

1. *Explain how the purchasing function contributes to the achievement of an organisation's objectives*
2. *Use appropriate information sources and criteria to evaluate and select suppliers*
3. *Explain how an organisation ensures that the regular quantities and quality of goods and services are purchased.*
4. *Explain the role of the major national and transnational organisations which influence international purchasing*

Indicative Content

1. *Explain how the purchasing function contributes to the achievement of an organisation's objectives*
Purchasing: as a service function, purchasing as a proactive activity, processes and policies.
Purchasing Strategy and Planning: the relationship of purchasing to corporate objectives, relationship of procurement to strategic development, the development of the concept of supply chain management.

Developing and purchasing systems: for standard items, for non-standard items.

The organisation and structuring of purchasing: centralisation versus decentralisation, possible organisational configurations.

Analysis of the efficiency of the purchasing function: performance indicators and benchmarking. Verification and sorting of purchase and supply documentation.

People in the purchasing function: skills needed, staffing needs analysis, recruitment and selection of purchasing staff, training and developing the staff, ethical standards in purchasing.

IT and purchasing: integrated purchasing systems and EDI, computer treatment of warehouse data.

2. *Use appropriate information sources and criteria to evaluate and select suppliers*

Sourcing for consumables, capital goods, goods for resale: supplier evaluation/vendor assessment, single sourcing versus multiple sourcing, evaluation of supply bids.

Nature of relationship with suppliers: competitive or partnership/collaborative sourcing. Treatment of commercial information and documentation.

Sourcing issues: tendering, make or buy, subcontracting/outsourcing, buying services, problems of buying commodities, purchasing in the public sector.

3. *Explain how an organisation ensures that the regular quantities and quality of goods and services are purchased*

Quality: views of quality, quality control (QC), quality assurance (QA), Total Quality Management (TQM), quality circles.

Specifications: standardisation, value analysis/engineering, assessing supplier quality.

Quantity: economic order quantities, stock control systems, management of surplus stock, location and physical characteristics, storage systems, secure storage, handling equipment.

Timeliness: production planning system, eg MRP 1, MPR II, JIT, Kanban, critical path analysis.

Price: pricing systems/methods, role of price: price and non-price factors in purchasing decisions, obtaining prices, contractual issues, spot forward, future, the significance of learning effects.

Security and safety: risks, risk management, warehouse administration.

Negotiations in purchasing: phases in negotiation, skills of negotiation.

Distribution methods: road, rail, shipping, air.

4. *Explain the role of the major national and transnational organisations which influence international purchasing*

Organisations of significance with regard to international purchasing: eg EU, DTI, SITPRO, trade agreements, GATT.

Payment in international trade: open account, bills of exchange, documentary credits, exchange rates and forward contracts, factoring.

International trade specialists: agents and distribution, chambers of commerce, freight forwarders.

Purpose of international purchasing: exchange rate issues, cross-cultural issues.

Global sourcing strategies: limitations, costs, benefits.

UNIT 14 EUROPEAN BUSINESS

Summary of Outcomes

1. *Evaluate the effect of membership on national economic policy*
2. *Examine patterns of trade and investment between member states*
3. *Discuss the implications for national organisations of the enlargement of the EU*
4. *Explain how national organisations assess opportunities for selling in other EU states*

Indicative Content

1. Evaluate the effect of membership on national economic policy

EU policies: competitor policy, economic and monetary union, criteria for entry into monetary union, European union, European Single Market Act.

Effects: implications for national economic policy of exchange rates, currency fluctuations, entry-non-entry into monetary union, meeting criteria for entry into monetary union.

2. Examine patterns of trade and investment between member states

Analysis: categories of major trade flows between member states, volume and value of goods, services and investments, significant trends in trade, movement of capital, lending and borrowing in member states, forecasting techniques to predict future trends in trade.

Importance of EU trade for the national economy.

3. Discuss the implications for national organisations of the enlargement of the EU

Current developments: potential changes in eastern Europe and how these have altered business relationships with EU states.

Potential entrants: from central and eastern Europe – economic and demographic profiles, major products and services, existing patterns of trade, cultural diversity.

Economic concepts: economic trade theory, comparative advantage.

Implications for national businesses: opportunities for opening new markets, changes in location patterns, impact of lower wages/costs.

4. Explain how national organisations assess opportunities for selling in other EU states

Information needs: market size, trends, structure, competition, channels of distribution, business culture and protocols, convergence in consumer tastes, sources of information on European markets.

EU policies/directives: product specifications, product descriptions, environmental control.

Selling methods: alternatives including availability of agents, licensing and franchising.

Assistance available: for exploring documentation.

Risk assessment: relationship between levels of investment and risk.

UNIT 15 ENVIRONMENTAL MANAGEMENT

Summary of Outcomes

1. Explain the concept of sustainability
2. Investigate how an organisation's activities impact on the environment
3. Explain the need for environmental management
4. Explain the need for waste management

Indicative Content

1. Explain the concept of sustainability

Sustainability: conservation of natural environment, renewable and non renewable resources, biodiversity, the earth's life support systems and processes, the depletion of finite resources, the earth's carrying capacity, duty of care, the quality of human life.

Factors: commercial decision-making, economic, socio-political, legal, ecological, scientific and technological information.

Sustainable practice: changes to existing practice, use of alternative technology and resources, legislation, commitment, corporate policy.

2. Investigate how an organisation's activities impact on the environment

Direct: global warming, ozone layer depletion, depletion of natural resources, loss of biodiversity and habitats, pollution of air, water and soil, acid rain, food contamination, soil exhaustion, waste, loss of visual amenity, animal and human health disorders, transport, increased population.

Indirect: customer pressure, social change and environmental awareness, insurance industry and lenders changing policies of property and land ownership issues, employees raised awareness and concerns about health, EC and national legislation, markets, prices.

Monitoring and assessment: self regulation, non-government organisations, independent environmental consultants, legislation, field surveys, literature review, collection, storage, analysis and presentation of information, local information sources.



Environmental performance: Environmental Impact Assessment (EIA), management systems, organisational design and decision-making cultures, monitoring change, reaching environmental targets, investment required, savings to organisations and the environment, quality systems.

3. *Explain the need for environmental management*

Approaches: objectives, policy, strategic, operational, legal requirements, organisational commitment.

Organisational culture: organisational commitment, environmental values and attitudes, education and training for staff, contribution of the individual, community at large, public information.

Environmental policy: allocation of responsibility, record keeping, targets, waste minimisation, energy use and conservation, reduction in costs, environmental sensitivity, environmental audits, health and safety legislation, technological efficiency, public information.

Legislation: self regulation, national legislation and EU directives, enforcement agencies, pressure groups.

4. *Explain the need for waste management*

Approaches to waste management: training, implementation, monitoring use of energy and waste, purchase of specific equipment and plant, cost benefits to the organisation.

Benefits of waste reduction: conservation of energy, use of by-products, on-selling of waste products, increased sales from greening of products/processes, cost reduction, increased market share, customer retention, increased loyalty and image.

Methods of reduction: initial product design, natural methods versus chemical treatment, recycling material, use of biodegradable materials, reparability versus replacement, benefits of design to meet legislation.

UNIT 16 SMALL BUSINESS MANAGEMENT

Summary of Outcomes

1. *Analyse performance of a small business enterprise*
2. *Propose changes to improve management and business performance*
3. *Revise business objectives and plans to incorporate proposed changes*
4. *Implement changes in all areas of the business This unit may be taught in class or used as part of a work experience project.*

Indicative Content

1. *Analyse performance of a small business enterprise*

Business profile: components of the business, objectives of the business, internal and external factors affecting business performance, performance measures, constraints and restrictions on business, responsibilities and liabilities of owner-manager.

Comparative measures of performance: comparisons with other similar-sized businesses in same geographical area, comparisons with businesses in same of similar industry, comparisons with industry averages. (Comparisons should cover all areas – financial, production, marketing, sales, human resources, use of technology)

Analysis of business information: analysis of past and current business information – financial, marketing information, sales, production, human resource efficiency, management effectiveness – using ratios, budget information, market research results, SWOT analysis, business reports (eg production efficiency).

2. *Propose changes to improve management and business performance*

Overcoming weaknesses: problem-solving strategies, sources and availability of professional advice in appropriate areas, finding solutions and alternatives, availability and use of outsourcing for specific functions eg payroll, debt collection.

Maintaining and strengthening existing business: maintaining appropriate performance records, building on business strengths, maintaining market share/position, importance of good customer/supplier/advisor relationships.

New opportunities: identifying areas for expansion eg niche markets and export opportunities where appropriate, research techniques, evaluating projects, assessing project requirements, costing and finding finance for new products, risk assessment.

Evaluation of management and personnel: skills audit, self-evaluation, development of self and associated personnel, assessing costs and benefits of self and staff development.

3. *Revise business objectives and plans to incorporate proposed changes*

Business objectives: structure of business objectives, assessment of business objectives in the light of current performance making changes to business objectives, impact of changes on business plans.

Business plans: structure of integrated business plans (financial, sales and marketing, production/output, personnel), use of business plans, evaluation of plans against business objectives, incorporating changes to plans, budgeting for changes, preparation of business forecasts.

Action plans: plans to implement changes, systems to manage, monitor and evaluate changes, performance measures, setting deadlines.

4. *Implement changes in all areas of the business*

Impact of change: effects of change on all areas of business – finance, workloads, morale, job roles, physical aspects (eg office space, production methods), use of technology, anticipating possible obstacles/problems.

Management of change: monitoring effects of change, maintaining systems and records to evaluate impact of change, appropriate revision of plans in response to actual results.

UNIT 17 TAXATION

Note: As this is such a specialised subject it has been submitted as Unit 17 and may be rejected if required

Summary of Outcomes

1. *Explain the duties and responsibilities of the tax practitioner and the tax environment*
2. *Calculate personal tax liabilities for individuals*
3. *Calculate tax liability for unincorporated associations*
4. *Calculate business tax (corporation tax) liabilities for companies*
5. *Calculate Capital Gains Tax*

Indicative Content

1. *Explain the duties and responsibilities of the tax practitioner and the tax environment*

National tax environment: purpose of taxation, types of taxation (VAT, income tax, business tax, capital gains tax, inheritance tax relevant to individual country, methods of collection.

The role of the tax practitioner: issues of tax liability, legislation and guidance from regulatory body, client confidentiality, giving client advice, dealing with the relevant authority.

2. *Calculate personal tax liabilities for individuals*

Relevant income and expenditure: income, expenses and investments, emoluments of employees, allowable expenses, benefit in kind, PEPs, pensions, TESSAs, other tax efficient investments, payments to charities, NIC, charges on income, distinction between employment and self-employment and any other considerations of “employee”.

Allowances: personal, married, age, other, MIRAS and mortgage relief, maintenance payments, linked to individual country.

Documentation: completion of tax returns, P60s, P45s, P11Ds, other tax administration.

Preparation of computations: schedules E,A,D,V1, tax rates, taxation of couples, independent tax for married women, payment dates (these are UK provisions) relevant computation outside the UK must be considered.

3. *Calculate tax liability for unincorporated associations*

Bases of assessment: trades and professions schedules D1 and D2, returns, periods for assessment (or as appropriate for different countries).

Adjustment of accounting profits and losses: disallowed expenditure, private use, capital expenditure, business entertainment, bad debts and bad debts provision, bank interest.

Capital expenditure: plant and machinery, industrial buildings and hotels, agricultural buildings, motor vehicles, short life assets.

Allowances: capital allowances, initial, writing down, disposals, balancing charges and gains, private use reductions, losses.

4. *Calculate business tax (corporation tax) liabilities for companies*

Bases of assessment: close companies, pay and file rules, payment dates.

Computation: adjusted profits, rates, treatment of losses, allowances, capital expenditure.

Tax and dividends: Advance Corporation Tax (recovery and surplus), Income Tax deductions, franked and unfranked investment income.

5. *Calculate Capital Gains Tax*

Computations: rules, chargeable gains and losses, allowances, rates, calculation, payment, dates, returns.



LEVEL 4 QUALIFICATION - COMPUTING

It is envisaged that this qualification be taught over two years and that Unit 6 is a double value unit.

UNIT 1; COMPUTER PLATFORMS

Summary of outcomes

To achieve this unit a student must:

1. Evaluate performance of a selected computer system
2. Employ operating systems
3. Upgrade a computer system
4. Participate in the planning of hardware/network installation and maintenance

COMPUTER SYSTEM

Processor: description of components (Von-Neuman architecture), terminology (eg bits, bytes, kilobytes etc), identification of factors affecting performance (eg MIPS, FLOPS, clock speed, computed performance indexes, bus architecture).

Backing store: identification of types (disc, CD etc), performance factors (eg data transfer rate, seek times, capacity).

Peripherals: description of available peripherals (displays, printers etc), understanding of performance factors (eg displays – performance, resolution, colour planes, video RAM, refresh rate, interlacing, slot pitch etc, printer – speed, resolution, image quality, software requirements, postscript, PCL and associated printer control).

Computer selection: specification of requirements, evaluating the performance of the selected system.

OPERATING SYSTEMS

Operating systems functions: overview of functions (eg user interface, machine and peripheral management etc), comparison between functions of different types of operating system (MS-DOS, UNIX, Windows, Novell-Netware).

(personal computer, network, mainframe etc)

Computer operations: use of a proprietary operating system, generation of environment and systems for a computer user (file/directory structures, tailoring of screen interface, backup systems etc)

Network administration: user management (maintenance of work groups, security etc)

COMPUTER SYSTEM

Upgrading opportunities: overview of opportunities (eg memory, addition of cards etc, current de-facto standards)

Upgrading: health and safety issues, changing/installing new components, testing

HARDWARE/NETWORK INSTALLATION AND MAINTENANCE

Network resources: components of a network (eg network operating system, nodes, communication systems, servers, network cards etc), functions of components, understanding of networking principles (eg packets, communication protocols, topologies etc).

External links: external information systems (eg e-mail, Internet, intranet), knowledge of capacity of external communications systems (eg ISDN, radio etc).

Network planning: creating an implementation schedule, producing a plan containing location of nodes, repeaters etc and server capacities for a specific set of defined applications.

User support planning: identifying user training needs, producing a training schedule, functions of a help desk

Security: physical and logical security measures, back-up and recovery, hacking, encryption levels of access rights

UNIT 2: SOFTWARE CONSTRUCTS AND TOOLS

Summary of Outcomes

To achieve this unit a student must:

1. Investigate problem-solving theory, applications and techniques
2. Develop business models as a tool for managers
3. Design and develop code using an appropriate programming methodology



PROBLEM-SOLVING THEORY, APPLICATIONS AND TECHNIQUES

Problem solving applications: an overview of the areas within computing (eg company system design, software development and computer management) where problem-solving is appropriate and examples of applications within those areas.

Overview of problem-solving theory and techniques: well-defined and ill-defined problems, techniques available (eg abstraction and generalisation, brainstorming, decision trees, project management, algorithms)

Testing and documenting the solution: a recognition that every proposed solution requires testing and documentation before implementation, testing and documentation templates for software development

BUSINESS MODELS

Model definition: a description with appropriate examples of how numerical information can model both current and future views of an organisational problem

Database feature: description and use of the features of databases
Spreadsheet features: description and use of the features of spreadsheets (formulae, graphs, functions etc)

Design and implementation of spreadsheet-based models: the production of a design from a specification, the implementation to satisfy the design, test the solution, use with various 'what if' scenarios

PROGRAMMING METHODOLOGY

Storage: the concepts of data storage within a computer program, using variables, constants and literals

Control structures: identify and select appropriate iterative and selection structures when writing simple programs

Programming language syntax: the facilities and rules of the language (operators, I/O comments, functions)

Program design: algorithmic method for the development of a solution to a problem (structure diagrams, pseudo code etc), producing tested programs to meet given specifications

Programming standards and practice: use of comments, consistent indentation and descriptive identifiers

UNIT 3: COMPUTING SOLUTIONS

Summary of outcomes

To achieve this unit a student must:

1. *Examine the nature of information and contemporary applications*
2. *Examine the tools available to organisations for information processing*
3. *Evaluate the information systems within an organisation*

INFORMATION AND CONTEMPORARY APPLICATIONS

Information and data: business requirements analysis, definition of information and data, sources of information, information requirements and the needs for information at different levels within an organisation, storing information and its importance with regard to security, accuracy and relevance

Contemporary applications: operational transaction processing, function of applications to senior management requirements (managerial decision making). Executive information systems

INFORMATION PROCESSING

Tools: description of current tools (eg text processors, client-server, databases, artificial intelligence, expert systems, data warehousing), description of the use of telecommunications (eg Internet, e-mail etc)

Information processing: transaction processing, information presentation and reporting, strategic advantage and problem-solving, relationship with tools

INFORMATION SYSTEMS WITHIN AN ORGANISATION

Measures: evaluation/criteria, eg accuracy, suitability, timeliness, cost, confidence, legal, ethical and social issues

Use of measures: the use of measures to evaluate information systems

End users: Documentation for, training for.

UNIT 4: QUALITY MANAGEMENT PRINCIPLES

Summary of Outcomes

To achieve this unit a student must:

1. *Employ systems analysis and design tools to maintain an existing system*
2. *Apply quality assurance procedures*
3. *Review the professional standards of a computer practitioner*

SYSTEMS ANALYSIS AND DESIGN TOOLS

Systems analysis and design tools: graphical and text-based tools appropriate for the methodology chosen, tools which define both the environmental and behavioural perspectives of a system, tools designed for process/functional modelling (eg state transition, event traces) object modelling (eg object diagrams, CRCs) and data modelling

Project management: production of simple critical path networks, using computer-based project management tools

Systems maintenance: change request form, the production of a new version of the analysis and design documentation for a project developed using the selected methodology, use of computer-based text and presentation packages for documentation, maintenance of cross- referencing and indexes.

QUALITY ASSURANCE

Quality assurance factors: meeting specification, budget, delivery time, maintainability, external and internal quality systems.

Quality assurance tools: quality manual, quality plan, project plan, configuration management, walkthroughs and inspection records.

PROFESSIONAL STANDARDS

Legal requirements: the requirements of current legislation affecting the implementation and management of computer systems (eg health and safety, data protection)

Professional requirements: professional standards required by professional computing bodies (eg British Computer Society), problems arising from lack of compliance with professional standards.

UNIT 5: COMMUNICATION TECHNOLOGY

Summary of Outcomes

To achieve this unit a student must:

1. *Evaluate the performance of communication systems*
2. *Analyse the impact of communications technology*
3. *Describe and evaluate the cost and security of communication systems*

PERFORMANCE OF COMMUNICATION SYSTEMS

Performance factors: the bandwidth required for given applications including text, graphics, video, and speech, options for providing bandwidth, evaluation of acceptable network performance, cost of providing and monitoring performance

Communication technologies: a survey of hardware components (eg modems, fast Internet routes, etc), a survey of communication standards eg ATM, FDDI etc)

Human factors: the trade-off between ideal and acceptable performance, user requirements versus business needs

IMPACT OF COMMUNICATIONS TECHNOLOGY

Business factors: the commercial opportunities presented by new communication technologies, information content of intranets and the benefits of sharing of this information within an organisation, the Internet as a source of information, trading, advertising and marketing opportunities, applications of digital broadcasting

Communication factors: security of transactions over the Internet, the use of LANs and WANs as a means of increasing efficient communication in an organisation, software and file format, version control across an organisation (avoidance of multiple incompatible formats), electronic fund transfer systems, role of communication devices (eg web servers, routers)





COST AND SECURITY

Development costs: the accurate costing for a particular system to include hardware, software, staff training, data conversion from previous systems, acceptance trials, pilot schemes etc, planning the future costs of repetitive hardware and software upgrades, the cost of server-based compared with workstation-based application software in terms of hardware and infrastructure, installation costs, licensing charges, external costs (eg line rental), maintenance contracts costs and the costing of providing user help facilities

Security costs: cost and value of data and information on a network, costs associated with re-building and checking consistency following system failure or unauthorised access, the costs and loss of willing staff participation as a result of over-zealous security measures.

Security mechanisms: security mechanisms supplied by the network systems including backup and data restoration, passwords, ownership and access rights, physical security devices (eg RAID servers, disc mirroring, ring back etc), software security eg transaction rollback.

UNIT 6: ADVANCED BUSINESS INFORMATION TECHNOLOGY UNIT

This unit has a value of 2.

Summary of Outcomes

To achieve this unit a student must:

1. *Identify a realistic business problem, plan and manage its solution*
2. *Specify and design a solution to a business problem*
3. *Implement the project*
4. *Present and critically evaluate the project*

IDENTIFY A REALISTIC BUSINESS PROBLEM

Problem identification: sources of information/ideas, investigations problem domains, finding and recording facts

Options and solutions: problem-solving techniques, comparative/contrasting problems, feasibility assessment, methodologies and communication proposals

Project management: planning, estimating, resource allocation, budgeting, monitoring and control techniques, use of computer-based tools

SPECIFY AND DESIGN A SOLUTION

Requirements specification: development, maintenance and operating environments, functional requirements and constraints, external interfaces, data flows, screen mock-ups, dialogues, reports, data dictionaries

Quality assurance: exception handling, verification procedures, event identification, acceptance criteria, standards for documentation and testing, service level agreements

Design: data analysis and design, application design, user interfaces, dialogues, design specifications, non-computer procedures, models, prototypes and design walkthroughs, job descriptions, service levels, logging systems, security and audit procedures, use of software tools appropriate to chosen project

IMPLEMENT THE PROJECT

Content for Outcome 3 will depend on the nature of the selected project but will typically consist of the following:

Implementation: methods and techniques, user involvement, implementation, planning documentation support, selection and support, changeover (eg pilot, parallel running), help systems, prototyping, user involvement, software

Testing: test plans, test cases/scenarios, functionality, user interface and documentation testing compliance with standards, verification that project meets specification

EVALUATE THE PROJECT

Presentation: writing styles, report writing and presentation techniques, use of graphics/illustrations, screen dumps, demonstrations, packaging and delivery, use of appropriate software

Critical evaluation: detailed analysis of results, conclusions and recommendations, ethical and social considerations, planned versus actual costs, opportunities for further studies and developments

UNIT 7: DATA ANALYSIS AND DATABASE DESIGN

Summary of Outcomes

To achieve this unit a student must:

1. *Design small databases*
2. *Implement and use databases*

DATABASES

Implement a design: select suitable data types, entity and referential constraints, convert logical database design to physical implementation using appropriate visual tools and structured query languages

Data manipulation and administration: use of query languages and visual tools for database maintenance, inserts, updates and amendments of data. Database distribution

Query and reporting: query languages (SQL) and query by example (QBE) to extract meaningful data, including formatting and use of functions/formulae, report writing tools, links to stored queries, design and format of reports, including graphical output

Application links: database applications, identification and use of data sources and access via 4GL programs and tools

Software Program: Oracle, ACCESS, SGBD, Informix

Design: Conceptual & Logical CASE basic concepts, tools.

Applications development: techniques, methodology, development in the client/server background

SMALL DATABASES

Relational model: the relational model and relational operations

Data analysis: identification of data requirements from different user perspectives, comparison of top-down and bottom-up approaches to data analysis, their strengths and weaknesses

Top-down analysis: entity analysis techniques, entities, attributes, key identifiers, relationship types and enterprise rules, entity relation diagrams (ERDs), degrees of a relationships

Bottom-up analysis: introduction to problems of redundancy, update anomalies, purpose of normalisation, functional dependency, determinacy

diagrams and identification of un-normalised data structures, development of first, second and third normal forms

Data definition: documenting results from data analysis, data models/notations, data dictionaries, use of supportive software including database products and data modelling software tools

UNIT 8: VISUAL PROGRAMMING

Summary of Outcomes

To achieve this unit a student must:

1. *Use visual objects*
2. *Design a visual application*
3. *Use advanced features of a visual development environment to implement an application*

VISUAL OBJECTS

Object types: Buttons, Text Boxes, Windows, Frames etc

Object structure: attributes, methods etc

Creating objects: placing objects on a screen and customising attributes

Linking objects: enabling objects to interact using programming or scripting

VISUAL APPLICATION

Design strategies: state transition diagrams, storyboarding, event modelling, prototyping

Design: using design strategies

VISUAL DEVELOPMENT ENVIRONMENT

Identification of features: investigation of current advanced tools and development methods

Employment of features: use of advanced features to satisfy the requirements of an application features available will vary greatly between different development environments, but typical examples might be the use of drag and drop, simple animation, linking to databases, Internet development)



UNIT 9: HUMAN COMPUTER INTERFACE

Summary of outcomes

To achieve this unit a student must:

1. Describe HCI-related developments and their application
2. Determine the issues related to a chosen HCI
3. Develop and evaluate an HCI prototype

HCI RELATED DEVELOPMENTS AND THEIR APPLICATION

Developments in technology: workstation environment eg screens, keyboards, pointing devices, other I/O devices (eg speech), related processing and storage requirements

Developments in HCI: virtual machines, command line input (command sets), menu selection and the methods of selection, graphical interfaces, speech, screen design for intensive data entry, intelligent HCI's, virtual personas (engaging with the computer within a virtual reality), concept of 'look and feel'

Developments in the concept of 'the user': range of users (eg expert, regular, occasional, novice, special needs), needs of user

Development of systems: new developments (eg hypertext, event driven systems, use of multimedia), modelling techniques, implication of new developments on user interfaces, implications of developments on hardware (storage, processing requirements etc)

Applications: range of applications, selection of HCIs for specific applications

HCI

Psychological considerations: memory (long and short-term), reasoning, perception, cognition and the use of metaphors and the consequences on the design of HCI

Health and safety considerations: ergonomics and the surrounding environment, eg lighting, seating, RSI, legal implications

Information considerations: necessity for information-rich environment, examples of systems (eg share trading rooms or combat environments)

Cost implications in the choice of HCI: training, effectiveness of system, architectural requirements (eg hardware, software, communications)

HCI support for less common environments: identification of applications (eg Remote interaction using virtual environments, real time simulations (flight simulators), high-speed interactive interfaces (games), special needs (implications for colour blind, partially sighted, blind, physically incapacitated, slow learners), analysis of implication of an HCI selection

HCI PROTOTYPES

Modelling the interface: mapping the system functionality to the conceptual model, grouping of the tasks into logical sets

Analysis: task analysis eg storyboarding, user needs analysis, evaluation of HCI complexity

Design: rules and heuristics for good HCI design, review of proprietary examples, context sensitive help, on line help/documentation, design tools, multimedia environments

Production: selection of tools, production of prototype

Measuring the functionality of an HCI: keystroke effort per task, ability to navigate within the system, time to perform a task, ability to configure the HCI, user satisfaction



UNIT 10: END USER SUPPORT

Summary of Outcomes

To achieve this unit a student must:

1. *Adequately deal with user problems*
2. *Demonstrate the ability to install hardware and software*
3. *Train an end user to use new software products*

USER PROBLEMS

Analysis of problem: ability to identify a user's requirements from a computer system, ability to analyse or determine a problem from a user's description

Evaluation of possible solutions: immediate response, advice on access to manuals, help systems etc, obtaining additional support

Human factors: appreciation of user frustration, appropriate communication techniques, situations requiring communication eg changes/amendments

User support systems: role of help desks, logging systems for faults and solutions, service level agreements

INSTALLATION OF HARDWARE AND SOFTWARE

Installation planning: analysis of users' requirements, installation schedules, acceptance standards, user involvement

Installation programs: installation and testing of software, device drivers, support files etc configuring software to suit specified user needs and the machine operating environment

Installation of hardware: installing and configuring supplied hardware to a manufacturer's standard instructions, (hardware may include single or multiple circuit boards, memory modules, storage of I/O devices etc), adherence to health and safety procedures

Testing: testing new installation against specified acceptance standards, taking remedial action

Re-configuration of installed software: re-configuration of software to suit changes in user requirements or to solve problems, testing of re-configuration

SOFTWARE PRODUCTS

Training areas: applications, security, routine maintenance

Training tools: a survey of tools eg manuals, guides, multimedia, courses etc, evaluation of appropriateness of different training tools

Training plans: identifying different training needs, producing a training schedule, evaluating training

Individual training: analysis of requirements of user, identify capability of user, employing appropriate tools with necessary support

Individual education: developing user responsibility (eg accuracy, prevention of viruses), encouraging users to increase knowledge of computing

UNIT 11: INTRODUCTION AND BASIC CONCEPTS OF PROGRAMMING

Summary of Outcomes

To achieve this unit a student must:

1. *Design and develop code using structured programming methods*
2. *Use modularisation appropriate to the chosen programming language*
3. *Create and apply appropriate test schedules*

STRUCTURED PROGRAMMING

Storage: the concepts of data storage within a computer program, using variables, constants and literals. For a third generation language, the pre-defined data types, integers, floating-point, character, Boolean (logical), strings, 1D and 2D arrays of simple types, and simple files, consequences of using these types, and the available operators within the supplied language (eg 'C')

Control structures: identify and select appropriate iterative and selection structures when writing simple programs

Programming language syntax: the facilities and rules of the language (operators, I/O commands etc) Program design structure, methodology employment of an algorithmic approach for the development of a solution to a problem (structure charts, pseudo code etc), producing tested programs to meet given specifications

Programming standards and practice: use of comments, code layout eg consistent indentation and descriptive identifiers



MODULARISATION

Use of functions/procedures: the student should use/create functions/procedures both pre-defined and user-defined, map structured design onto a program using functions/procedures

Scope of variables: global, local, static and external variables

Parameters: passing data by value and reference, using return values

TEST SCHEDULES

Tools – developing and testing programs,

Error types: semantic, syntax and run-time

Test documentation: test plan and related evidence of testing (may include reading sample inputs from a file and/or writing test results to a file)

Test data and schedules: black box, white box and dry testing

Error detection techniques: compiler and linker error messages, debugging tools and structured walk-through

UNIT 12: DATABASE MANAGEMENT SYSTEMS

Summary of Outcomes

To achieve this unit a student must:

1. Investigate DBMS technologies
2. Perform database administrative tasks
3. Devise strategies for a multi-user environment

DBMS TECHNOLOGIES

Evolution: concepts of redundancy and dependence in flat file systems, the DBMS solution, data independence, integrity and security, components of a typical database management system

Technologies: hierarchical, network, relational and object models, single user, multi-user and enterprise wide database applications, two and three tier client-server, Internet/intranet architectures, support for complex data types eg graphical, multi-media

DATABASE ADMINISTRATIVE TASKS

DBA functions: the DBA's role, creation and management of databases and users, security eg levels of authority, access rites, service levels, recovery, back-up procedures, use of views, SQL support for DBA functions

Integrity: insert, update and deletion anomalies, entity and referential integrity, database design including integrity constraints, SQL support for integrity constraints

Performance: performance criteria, storage and access methods eg use of indexes, b-trees etc query optimisers, costs of improved performance, language support for optimising performance

MULTI-USER ENVIRONMENT

Concurrency: properties of transactions, concurrency issues, atomicity, consistency independence and durability (ACID) principles

Backup and recovery: use of log files, checkpoints, timestamping, rollback and recovery techniques, SQL support

Locking: loss of integrity in concurrent systems eg lost updates, inconsistent analysis, isolation levels, locking mechanisms (including two-phase protocol)



UNIT 13: WEB SITE MANAGEMENT

Summary of Outcomes

To achieve this unit a student must:

1. *Design interactive web pages*
2. *Design and build web sites*
3. *Develop interactive applications on a web server*

INTERACTIVE WEB PAGES

Mark-up languages: markup languages (ML), structure of ML, ML tags and their documentation, current ML features (tables, frames etc), current changes to ML standards

Browsers: differences between current browsers and designing to suit them, use of Javascript, Java applets etc

Server interaction: linking via a web server/Internet with databases using current protocols eg Et, post mailto, isindex, query, ODBC

WEB SITES

Specification: web site software, server operating system, server hardware and communications requirements, server performance and loading

Server organisation: structure of services (eg WWW,ftp, gopher), structure of data, areas, aliases, management and performance analysis tools, portability)

Security and integrity: backup, user access rights, file management, testing integrity of third party supplied web pages, protection against aggressive attack eg firewalls

INTERACTIVE APPLICATIONS

Server side interaction: accepting data from users and responding with appropriate actions and responses based using the CGI (Common Gateway Interface) or equivalent

Database connectivity: the common methods of using/accessing databases from CGI applications eg ODBC, JDBC, SQL

UNIT 14: OBJECT-ORIENTED PROGRAMMING

Summary of Outcomes

To achieve this unit a student must:

1. *Assimilate and use basic object-oriented programming concepts*
2. *Use an object-oriented programming design method*
3. *Reuse system components using object-oriented programming principles*

OBJECT-ORIENTED PROGRAMMING

Classes: objects, attributes, methods, representation of Abstract Data Types, the control of scope of attributes (member data) and messages(member functions) within a class, constructors and destructors, inheritance, dynamic Binding, virtual functions and polymorphism, parameter based types (templates)

Implementation: implementation of classes, making instances of objects, using objects with a program, building a system with classes

OBJECT-ORIENTED BASED PROGRAMMING DESIGN

Design strategy: formulation of strategy identifying the differences in data driven vs functions decomposition in design

Design method: familiarisation with a formal (eg OMT) or informal (eg CRC cards) object based design method to clarify the roles of the objects within the system

Design refinement: clarification of a design using principles of maximum coherence and minimum coupling between the classes

OBJECT-ORIENTED PROGRAMMING PRINCIPLES

Class libraries: use of classes from libraries to produce 'off-the-shelf' solutions to typical software problems eg encapsulated file systems object or other current uses such as Java applets, databases or visual components

Class modification: extension of functionality of a supplied class using inheritance (this is an opportunity to use 'windows' objects, elements of the C++STL or other class libraries relevant to the language development platform and environment in use)

UNIT 15: MULTIMEDIA AND INTERNET DEVELOPMENT

Summary of Outcomes

To achieve this unit a student must:

1. *Develop an integrated set of web pages/frames*
2. *Develop a multimedia application*
3. *Investigate a current multimedia/Internet technique*

WEB PAGE/FRAMES

Environment: review of the use of current Internet browser software and introduction of features – URLs, HTML, Javascript interpreter, Java applets, plugins, protocols etc

Page elements: development of skills in the use of mark-up language (eg HTML etc) – headings, rules, frames, buttons, text and list boxes, hyperlinks/anchors, graphical images, clickable images, maps etc. **Survey:** review of current design/linkage/structure of pages on the Internet

Design: design of interlinked pages/frame-based web application

Development: creation of a web application

MULTIMEDIA APPLICATION

Current applications: summary of current applications – marketing, business presentations, computer-aided and computer-based learning (CAL/CBL), virtual modelling, knowledge communication, animation, simulation etc

Design/plan: consider alternative design methods/techniques and environment which could include the use of outline design, storyboarding, graphical design, audio capture/edit, video sources, animations, text design etc and integrate into a structured plan

Elements: sound, video and text content, usability of the finished product

Development: use of available multimedia software, creating a structured and designed application from the elements

Documentation: documenting of the application to set standards

MULTIMEDIA/INTERNET TECHNIQUE

Techniques survey/selection: research and review of current techniques, selection of a current application or development technique

Design: evaluation of alternative current design methods, uses of the selected technique, plan of overall evaluation

Development: selection of software, design of solution, development of application



LEVEL 4 QUALIFICATION - E-COMMERCE

UNIT 1 THE NEW ECONOMY

Summary of Outcomes

1. Interpret the impact of the information society
2. Identify the impact of economic development growth
3. Understand the effect of globalisation communication

Indicative Content

1. Interpret the impact of the information society

Communication media, forms and evolution. The shrinking world, changing perceptions, social and cultural globalisation, expansion of in relation to information, responsibility of information exchange, comparisons of information/knowledge society. Social relations and responsibilities to web. Power relationships, virtual communities

2. Identify the impact of economic development growth

Spread of communication and implications for 3rd world nations. Possible development – determining factors in economic growth, productivity, saving and investments, education, intellectual capital, technological knowledge

3. Understand the effect of globalisation communication

Globalisation, responsibilities, international intervention, international monitoring, economic and financial globalisation, money markets, regulations, role of ETN, role of TIC



UNIT 2 PRINCIPLES OF E-COMMERCE AND ONLINE BUSINESS

Summary of Outcomes

1. Identify the objectives of business organisations
2. Evaluate the impact of e-Commerce
3. Examine the development of an on-line business
4. Establish clear purposes and identify target market

Indicative Content

1. Identify the objectives of business organisations

Types of organisations: private, public, voluntary, charitable. Strategic contexts and terminology: strategic architecture, strategic control. Key objectives of organisations: project maximisation, market share, ROCE growth, levels of service, customer/end user perception.

Key functions and responsibilities: physical performance, measure efficiency, responsibilities or organisations vis-à-vis the outside world, the national environment, ethical practice, stakeholder groups, concept of corporate mission

2. Evaluate the impact of e-Commerce

Development of the orientation of organisations from production to marketing societal issues consumer requirements, consumer life style, Maslow hierarchy of needs, competitor orientation, marketing principles adapted for e-Commerce. Buyer behaviour.

3. Examine the development of an on-line business

Measuring: estimating total market size, value and volume, growth and trends. Competitive analysis: competitor analysis – market/product profiles of competition, brand and market share, characteristic of the competition – market innovator/follower, objectives of the competition, strategies of the competition, strengths and weaknesses of competition, future behaviour of the competition and their strategic intent.

Sources of finance: major sources of finance for all types of businesses retained profits, loans, investment by outside parties, shares, hire purchase and lease schemes, creditors, debt factoring, working capital



Flow of finance: importance of finance flow within a business, matching appropriate funds to projects/investments, implications of interruptions in funding/finance flow

Decision making: the importance of finance and financial information to decision-making within the business, the type of information required by different decision makers.

4. *Establish clear purposes and identify target market*

Macro-environment: political, legal, economic, socio-cultural, ecological and technological factors

Micro-environment: stakeholders (organisation's own employees, suppliers, customers, intermediaries, owners, financiers, pressure groups and competitors), direct and indirect competitors, Porter's competitive forces

Buyer behaviour: personal variables – demographic, sociological, psychographic and behavioural), evaluation and choice of segments, positioning, segmenting industrial markets, size, value, standards, industrial clarification.

UNIT 3 THE INTERNET

Summary of Outcomes

1. *Appreciate the development of the internet*
2. *Understand the potential and functions of the internet*
3. *Examine the implications of the internet*
4. *Examine the context in which e-Commerce exists within business*
5. *Set up e Commerce site*
6. *Hardware and software models in e-Commerce sites*

Indicative Content

1. *Appreciate the development of the internet*

Evolution of internet-political, economic, as a tool for communication, as a tool of negotiation, problems associated with regulations, control, virus. Strategies for institutional communication between consumer and net, impact of net on social and business communication.

2. *Understand the potential and functions of the internet*

Growth of internet trade, logistics, implication and tendencies of internet access by mobile communication, positioning, differentiation, business opportunities, mobile portals, institutional opportunities, as a tool for education.

Investigation of underpinning technology, links to other applications, varied functions.

3. *Examine the implications of the internet*

The implications of the use of the net within business, links to industry, speed of change, opportunities for business potential, strengths and weaknesses of web-based business, relative influences of the differing organisations involved with the internet, understand the boundaries.

4. *Examine the context in which e-Commerce exists within business*

Impacts on traditional relationships, concepts of virtual marketing contemporary boundaries of internet, one-to-one marketing strategies, importance of physical service, pricing strategies/stock strategies to create customer loyalty.

5. *Set up e Commerce site*

Build to order mass customisation, intelligent emissions of e-mails, supply chain integration, just in time production, enterprise resource planning, agents and rules of business, web servers, Domino (Lotus), Java server-side applications, implementation, layout of interfaces with the consumer, marketing, measurement of results, functions, promotion, dynamic selection of items, control of the offer of items, configuration.

6. *Hardware and software models in e-Commerce sites*

Hardware: ISPs, POPs, backbone, web servers, proxy servers, modems, digital networks (Receiver Data Interface), dedicated lines, routers.

Software: models of virtual shop, configuration of a virtual shop models.

Platforms: Windows, Macintosh, Unix, Linus.

Local Network: Intranet, quality/correction of information, assessment monitoring of criteria and procedures.

UNIT 4 TECHNICAL REQUIREMENTS AND SECURITY

Summary of Outcomes

1. *Understand the role of databases in e-Commerce*
2. *Display an understanding of internet technology*
3. *Identify technical requirements for an e-Commerce business*
4. *Display a knowledge of internet and e-Commerce security issues and technologies*
5. *Websites*

Indicative Content

1. *Understand the role of databases in e-Commerce*

Create a multi-media database to support e-Commerce system. Interactivity, updating, hypertextuality, global reach, content and presentation, integration with databases, report generation, merging, statistical data, graphical representation, research tool, tracking, monitoring.

2. *Display an understanding of internet technology*

Technological evolution, internet service provider, world wide web, internet provider, domain name system, internet assigned numbers authority. Hypertext transport protocols, file transport protocol, transmission control protocols, login tools.

3. *Identify technical requirements for an e-Commerce business*

Technologies, document type definition, resources description framework, document object model, active server pages. Formatting languages, hypertext mark-up language, extensible markup language, extensible style language.

Programming language.

Integrated databases, oracle, MS-SQL Server, Interbase.

4. *Display a knowledge of internet and e-Commerce security issues and technologies*

Logical and physical security, control of information access. Control of information integrity, protection of information systems, security in local networks, security on the internet. Security in transactions, partnerships between financial institutions, certification of security solutions, forms of electronic payment, credit cards, innovation in recognition, e-cash.

Cryptography, firewalls, secure electronic transactions, secure socket layer.

5. *Websites*

Types of sites, catalogues, image marketing, informative sites (virtual shop window) virtual shopping, customisation, personalised marketing, client orientated sites, security systems to prevent access, interactivity, retrieval of information, interfunctionality.

UNIT 5 E-COMMERCE WORK PLACEMENT

Summary of Outcomes

1. *Identify e-Commerce Project*
2. *Establish and develop project*
3. *Monitor Project*
4. *Present and Evaluate Project*

Indicative Content

1. *Identify e-Commerce Project*

Identify project, discussion with relevant individuals, assess needs and expectations, consider alternatives, opportunity costs, in relation to project.

Discuss project management.

2. *Establish and develop project*

Produce project specification, product action/target plan, gain management approval, consult with those affected, "sell" idea, identify necessary resources.

Agree specifications, adjust time scales, document progress.

3. *Monitor Project*

Recognise problems, take appropriate action, assess effectiveness of monitoring system and take appropriate action, monitor project readjust timescales if necessary.



4. *Present and Evaluate Project*

Present detailed report on project and “run” project in a structured format. Consult those involved in previous discussion/consultation. Gain feedback, evaluate identify strengths and weaknesses of project. Investigate future development and limitation of current project. Decide future viability and make decisions on action to be taken.

UNIT 6 SUPPLY AND LOGISTICS MANAGEMENT FOR E-COMMERCE

Summary of Outcomes

1. *Explain how supply chain management contributes to the achievement of business objectives using web based technologies*
2. *Use appropriate information sources and criteria to evaluate and select suppliers and make effective purchasing decisions*
3. *Display a knowledge of the elements of supply chain management for organisations using web-based technology*
4. *Identify systems for supply chain management for web-based transactions*
5. *Concepts of logistics, activities and fundamentals of integrated management and logistic parameters of the management of goods and other materials*
6. *Management, movement and storage of goods*

Indicative Content

1. *Explain how supply chain management contributes to the achievement of business objectives using web based technologies*
Describe and discuss relative merits for different supply chain structures employing web-based technologies. Analyse alternative supply chain strategies. Consider alternatives, conduct SWOT, identify limitations. Adopt strategies to meet specific business objectives. Evaluate competing supply chain strategies, consider and establish business objectives, use web-based technologies to achieve objectives.
2. *Use appropriate information sources and criteria to evaluate and select suppliers and make effective purchasing decisions*

Examine alternative sourcing strategies adopted by different types of organisations. Consider web-based contributions. Consider web-based solutions. Consider, monitor and provide feedback for vendor approval. Establish relationships with suppliers. Identify techniques for the purchase of capital goods, industrial goods, consumer goods for re-sale, contract purchasing and services.

3. *Display a knowledge of the elements of supply chain management for organisations using web-based technology*

Identify the importance of customer relationship management in fulfillment chain. Explain the stages of supply chain management and recognise how web-based technologies assist the integration of different parts of the supply chain and supply network. Propose channels of distribution, assess procedures used to ensure the security of goods or services. Evaluate alternative supply chain strategies for different types of organisations.

4. *Identify systems for supply chain management for web-based transactions*

Consider feasibility of electronic payment systems using web-based technology, assess a range of methods used for exchanging information, evaluate web-based informational, pre-transactional, transactions and post-transactional processes and their implications for supply chain strategies. Recommend changes to existing processes and methods to improve customer fulfillment using web-based technologies – reduction of lead time etc.

5. *Concepts of logistics, activities, and fundamentals of integrated management and logistic parameters of the management of goods and other materials*

Logistics and impact on management, concept of integrated logistics, logistic activities, integrated management in digital economy. Integration of information flow, integration of physical flow. Purchase management, incoterms and international commercial implications, procurement and e-procurement, criteria for selection and qualification of suppliers.

6. *Management, movement and storage of goods*

Location of storage infrastructures. JIT, support infrastructure, management and organisation of order cycle, storage equipment and movement of goods – traditional – computerised – virtual warehouse.

UNIT 7 LEGAL AND REGULATORY FRAMEWORK FOR E-COMMERCE

Summary of Outcomes

1. Investigate sources of law in e-Commerce
2. Recognise the implications of copyright for e-Commerce
3. Explore the issues arising from the law of privacy for e-Commerce
4. Assess the implications of consumer law for e-Commerce

Indicative Content

1. Investigate sources of law in e-Commerce

Regional/national framework of legislative criteria, European sources of law relating to e-Commerce. Enforcement, sanctions, legal personnel, cross-border policing, standardisation of legal approach.

2. Recognise the implications of copyright for e-commerce

Creation of copyright: Intellectual property. Remedies, monitoring, competition policy, kite marking. Standardisation of quality – cross border controls.

3. Explore the issues arising from the law of privacy for e-Commerce

Libel malicious falsehood, obscenity and decency, chat rooms, access, firewalls. Discrimination, corruption, fanatical responses to information, pornography, racial/sexual, ethnic literature. Data protection, employer vicarious liability.

4. Assess the implications of consumer law for e-Commerce

Contractual terms, vitiating factors, STC, legal responsibilities to consumers – relevant to each country. Business/business responsibilities. Business/consumer responsibility for defective goods. Transfer of title, delivery, real and personal remedies, discharge of contract.

UNIT 8 SALES AND MARKETING FOR INTERNET BUSINESS

Summary of Outcomes

1. Evaluate existing marketing processes
2. Assess internet applications to the marketing process
3. Develop an internet implementation plan
4. Assess importance of cognitive/sensory elements of online merchandising
5. Assess the strategies of virtual shopping

Indicative Content

1. Evaluate existing marketing processes

Product mix, product life-cycle and its effect on other elements of the marketing mix, product strategy, new product development. 7 P's in relation to market exposure, structure of sales channels.

2. Assess internet applications to the marketing process

Potential contribution of internet technology to product development, communication (market, mission, money, message) immediate impact of onscreen message, market exposure, market penetration, market saturation.





3. *Develop an internet implementation plan*

Macro-environmental factors, SWOT, stakeholders, competitive forces, segmentation. Identify promotional strategies, image, consumer perception, consumer reaction, public relations, physical distribution.

4. *Assess importance of cognitive/sensory elements of online merchandising*

Home page of site as calling card, shop window, site structure, planning of pages, organisation of contents, importance of images, colour, shapes, sounds, languages. Commercial impact – at shop window level, product level.

Commercial promotion – at shop window level, product level.

5. *Virtual Shopping*

Types of virtual shopping e.g. sound/video. Location/Domain – accessibility to buyer/delivery methods/cultural reality. Stock strategies/price strategies – competition with traditional methods. Consumer services – rewards/incentives. Customer loyalty.

UNIT 9 EUROPEAN AND INTERNATIONAL STRATEGIES FOR BUSINESS

Summary of Outcomes

1. *Demonstrate an understanding of the European and international business environment*
2. *Appreciate the cultural and political issues associated with operating within the international community*
3. *Assess opportunities for selling in Europe and beyond*

Indicative Content

1. *Demonstrate an understanding of the European and international business environment*

Explain the advantages of European/international trade-categories of major trade flows between member states, volume and value of goods, services and investments, significant trends in trade, movement of capital, lending and borrowing, forecasting techniques to predict future trends in trade. Importance of trade – national economy, balance of payments, opportunities for EU business.

Current developments – potential changes in Eastern Europe and relationships with EU states.

Potential entrants – from Central and Eastern Europe, economic and demographic profile, major products and services, existing patterns of trade, cultural diversity.

Economic concepts economic trade theory, comparative advantage, opportunities for new markets, changes in location patterns, impact of lower wages/costs.

Explain the role of international trading organisation such as WTO, OECD, and ILO.

2. *Appreciate the cultural and political issues associated with operating within the international community*

EU policies – competitor policy, economic monetary union, criteria for entry into monetary union, European Single Market Act. Implications for national economic policy of exchange rates, currency fluctuations, entry/non-entry into monetary union, meeting criteria for entry into monetary union.

Cultural diversity – business methods, approaches to discussion/negotiation business ethics – decision making approaches and importance of cultural diversity when assessing international business opportunities. Effects of national culture on the business marketing function. Role of political factors in international business.

3. *Assess opportunities for selling in Europe and beyond*

Assess the opportunities to sell in EU states for given organisations – information needs, market size, trends, competition, channels of distribution, business culture and protocols, convergence in consumer tastes, sources of information on European markets, EU policies and directives – product specification, product description, environmental controls.

Selling methods in EU internally, alternatives including availability of agents, licensing and franchising. Assistance available – cross border arrangements, arrangement between EU and international bodies. Risk assessment – relationship between levels of investment and risk.

UNIT 10 MANAGEMENT AND INFORMATION SYSTEMS DESIGN

Summary of Outcomes

1. *Explain the purpose and scope of e-Commerce applications*
2. *Evaluate the use of an e-Commerce application as a business management function*
3. *Assess the ability of newly applied e-Commerce applications to provide compatible MIS functions*
4. *Evaluate differing options to establish, maintain and monitor e-Commerce software applications*

Indicative Content

1. *Explain the purpose and scope of e-Commerce applications*

Describe how MIS is used in a commercial context – definition of terms, internal and external sources of information required for effective business/commercial management, the differing scales of MIS requirements within a variety of commercial contexts.

Evaluate the integration of e-Commerce with existing trading methods as an aid to improving business performance – accuracy, relevance, value and importance, benefits and limitations.

Evaluate the immediate and future impact of e-Commerce activity on accepted MIS functions and improvements in organisational performance. Assess types of data which MIS can provide in planning, controlling the decision process, what is going on in the business, what is going on in the market place.

2. *Evaluate the use of an e-Commerce application as a business management function*

Compare and contrast applications of e-Commerce in – planning and systems development to support strategic objectives, day-to-day running, delivery and support systems, strategic operational and tactical planning processes. The role of training – recommended human resource and training requirements to support e-Commerce implementation. Recommend strategic approach to Human Resource Management.

3. *Assess the ability of newly applied e-Commerce applications to provide compatible MIS functions*

Integrate intelligence generated by e-Commerce applications with existing management information data which synthesises text, spreadsheet and database information, financial packages, statistical package, internal and external use of electronic communications such as email and the internet, differing software applications to store retrieve and analyse.

Evaluate the customer relationship management functions embedded in e-Commerce applications.

Propose the adoption of data warehousing methods to maximise e-Commerce generated MIS intelligence/data.

4. *Evaluate differing options to establish, maintain and monitor e-Commerce software applications*

Evaluate ASP (application service provider) client customisable and bespoke e-Commerce solutions, consider costs. Initial installation maintenance, training and benefits of e-Commerce commitment to the enterprise. Identify the human and IT resource implications of entering e-Commerce activity.





UNIT 11 MANAGING FINANCIAL SYSTEMS IN E-COMMERCE

Summary of Outcomes

1. Explain the concept and measurement of cost within business organisations
2. Collect and analyse cost information for use within an organisation
3. Prepare budgets and cash flow forecasts for an organisation
4. Monitor and control costs and budgets within an organisation

Indicative Content

1. Explain the concept and measurement of cost within business organisations

Type of costs: materials, labour, overhead, direct, indirect, fixed, variable, semi-variable, functional

Costing systems: job costing, process costing, contract costing, integrated and non-integrated

Measurement techniques: absorption costing, marginal costing, activity-based costing, standard costing, stock valuation methods (FIFO, LIFO, AVCO), payroll data, time sheets, allocation and apportionment of overheads, overhead absorption rates, use of spreadsheets.

2. Collect and analyse cost information for use within an organisation

Use of statistical techniques for cost data collection and analysis: basic understanding of data collection, sampling methods, sampling frame, sampling error, graphical, tabular and diagrammatic presentation, use of index numbers.

3. Prepare budgets and cash flow forecasts for an organisation

The budgeting process: importance, purpose, links to cost reduction, control of quality and TQM, performance and motivation, productivity, resource utilisation, profitability.

Types of budgeting: fixed, flexible, zero-based, incremental

Preparation of different budgets: subsidiary (functional) and master budgets, cash flow forecasts, effects of key and limiting factors, forecasting techniques, the management of working capital.

4. Monitor and control costs and budgets within an organisation

Cost control: break-even point, margin of safety, contribution analysis, what-if analysis, limiting factors, scarce resources, use of linear regression.

Budget monitoring: importance of monitoring, comparing budgeted to actual figures, investigating differences.

Variiances: calculations, establishing causes of variances, taking corrective action.

UNIT 12 COMPUTER PROGRAMMING AND OPERATING FOR E-COMMERCE

Summary of Outcomes

1. Design and develop code using structured programming methods
2. Use modularisation appropriate to the chosen programming language
3. Create and apply appropriate test schedules
4. Understand the concepts of operating systems and programming languages
5. Utilise software design techniques
6. Analyse and apply programming techniques
7. Implement formal testing procedures

Indicative Content

1. Design and develop code using structured programming methods

Identification and selection of appropriate pre-defined data type, rationale for selection, consideration of appropriateness for required applications. Use simple input/output and appropriate operators, justification for decision of selection. Identify and use appropriate selection structures and loop structures for given task. Explain conditions for acceptance construct alternative models, assess strengths and weaknesses, discuss rationale for choice, produce programmes to desired standards.

2. *Use modularisation appropriate to the chosen programming language*

Construct a programme from a design and use appropriate functions/procedures. Understand the language of HTML (Hypertext markup language). Tags – identifiers –eg headers. Attributes eg parts of a whole. Links to other sites. Clickable maps – information providing graphics/hot spots. Images, jpeg, gif and gif, tables, forms, frames, Java script and applets applications. Multimedia, sounds/video. Publication on the web.

Construct and evaluate a program from a design and use appropriate functions/procedures. Identify strengths and weaknesses and life-time of variables – demonstrate effect of scope. Pass data effectively between modules.

3. *Create and apply appropriate test schedules*

Identify and demonstrate discrimination between semantic and syntax errors – consider corrections. Produce test documentation and evaluate. Successfully construct and use test data and schedules to detect logic errors. Use appropriate techniques for detecting errors and evaluate methods.

4. *Understand the concepts of operating systems and programming languages*

Use an operating system and analyse its functions. Solve a programming problem using appropriate language – Java and other programming and formatting languages. Dolphin, visual C++, C++ Builder, ASP, XML, assess validity, discuss why they are used and assess the various strengths and weaknesses of each.

5. *Utilise software design techniques*

Produce well-defined designs using a formal technique. Software for the creation and editing of web-pages eg front cover/composer.

Application/conversion.

6. *Analyse and apply programming techniques*

Use the main constructs of sequence, selection and interaction in programming code. Code simple programmes with appropriate tasks. Identify designs and their appropriate code. Produce well defined code without redundancy.

Utilise graphics and sound in program code.

7. *Implement formal testing procedures*

Explain the concepts of the testing of a program. Identify rationale, consider alternatives. Use formal notation to test a program, design test data.

UNIT 13 OBJECT ORIENTED LANGUAGES FOR E-COMMERCE

Summary of Outcomes

1. *Demonstrate an understanding of object oriented design*
2. *Demonstrate an understanding of the principles of object oriented programming*
3. *Produce a program from a design using an object oriented language*

Indicative Content

1. *Demonstrate an understanding of object oriented design*

Identification of the need for diagrammatic representation of object oriented concepts, Consideration of possible alternative representations. Model construction, consider methodology assess and evaluate design methods. Construct alternative models. Devise a model which addresses issues involved in object oriented problem. Identify and explain requirements for data abstraction, encapsulation and abstract data typing.

2. *Demonstrate an understanding of the principles of object oriented programming*

Identify and analyse the differences between structured and object oriented programming. Describe the role of a class in abstract data types. Explain data encapsulation/information hiding. Apply polymorphism/overloading.

3. *Produce a program from a design using an object oriented language*

Investigate and describe the process of system design. Consider all alternatives, demonstrate rationale for adoption. Review analysis model, offer alternative models. Consider implementation methods. Transform the analysis model as a basis for implementation. Produce the program using an object orientated language.

UNIT 14 DATABASE MANAGEMENT FOR E-COMMERCE

Summary of Outcomes

1. *Design small databases*
2. *Implement and use databases*

Indicative Content

1. *Design small databases*

Apply data analysis and design techniques for a given context – structure, fields, data types, field widths, primary key, tables, field properties. Use appropriate software to document designs.

2. *Implement and use databases*

Use a variety of tools to convert logical designs to physical databases – enter/edit/delete records. Soft, query forms reports.

UNIT 15 MANAGING FINANCIAL RESOURCES IN E-COMMERCE

Summary of Outcomes

1. *Explain the concept and measurement of cost within business organisations*
2. *Collect and analyse cost information for use within an organisation*
3. *Prepare budgets and cash flow forecasts for an organisation*
4. *Monitor and control costs and budgets within an organisation*

Indicative Content

1. *Explain the concept and measurement of cost within business organisations*

Type of costs: materials, labour, overhead, direct, indirect, fixed, variable, semi-variable, functional.

Costing systems: job costing, process costing, contract costing, integrated and non-integrated.

Measurement techniques: absorption costing, marginal costing, activity-based costing, standard costing, stock valuation methods (FIFO, LIFO, AVCO) payroll data, time sheets, allocation and apportionment of overheads, overhead absorption rates, use of spreadsheets.

2. *Collect and analyse cost information for use within an organisation*

Use of statistical techniques for cost data collection and analysis:

basic understanding of data collection, sampling methods, sampling frame, sampling error, graphical, tabular and diagrammatic presentation, use of index numbers.

(Note: Students should already be familiar with the techniques and look at their application for financial purposes.)

3. *Prepare budgets and cash flow forecasts for an organisation*

The budgeting process: importance, purpose, links to cost reduction, control of quality and TQM, performance and motivation, productivity, resource utilisation, profitability.

Types of budgeting: fixed, flexible, zero-based, incremental.

Preparation of different budgets: subsidiary (functional) and master budgets, cash flow forecasts, effects of key and limiting factors, forecasting techniques, the management of working capital.

4. *Monitor and control costs and budgets within an organisation.*

Monitor and control costs and budgets

Cost Control: break-even point, margin of safety, contribution analysis, what-if analysis, limiting factors, scarce resources, use of linear regression.

Budget monitoring: importance of monitoring, comparing budgeted to actual figures, investigating differences.

UNIT 16 QUANTITATIVE TECHNIQUES FOR BUSINESS

Summary of Outcomes

1. *Use statistical techniques to collect and analyse data*
2. *Produce forecasts based on formalised procedures*
3. *Apply quantitative techniques to business situations*

Indicative Content

1. Use statistical techniques to collect and analyse data

Data sources: primary and secondary sources survey methodology, sample frame, sampling methods, sample error, questionnaire design.

Interpretation of charts: graphical and diagrammatic presentation.

Frequency distributions: generation from raw data, grouping, class boundaries, irregular intervals, histograms, frequency polygons.

Representative values: mean, median and mode, calculation from raw data and frequency distributions, appropriate uses.

Cumulative frequency: tables and charts, calculation and use of interquartile range (IQR) and percentiles.

Measures of dispersion: definition and use of range, IQR and standard deviation, use of spreadsheets.

2. Produce forecasts based on formalised procedures

Time series analysis: derivation and use of moving averages, centred trend, seasonal variations and seasonally adjusted data using either the additive or multiplicative model.

Correlation: scatter graphs, positive and negative correlation, coefficient, significance Regression analysis: derivation of regression equation.

Forecasting analysis: preparation of forecasts using time series analysis and regression, reliability.

3. Apply quantitative techniques to business situations

Inventory control: periodic review, re-order level, Economic Order Quantity (EOQ), demand re-order timing.

Linear programming: formulating the problem, graphical solution, tight and slack constraints.

Networking: network diagrams, critical path, slack time, crashing activities.

Gantt charts

Indexes: simple, aggregate, retail price index (RPI), deflation.

UNIT 17 ENGLISH

This Unit is offered as an addition to the 16 Unit requirement for non-English speakers

Summary of Outcomes

1. *The information society*
2. *Communication skills for business*
3. *Business/e-Commerce*
4. *Virtual Shopping*

Indicative Content

1. *The information society*

Develop abilities within the four language skills. Acquire and expand vocabulary related to each of the topic areas. To understand and appreciate the appropriate exponents for talking about the information society. Develop group working spirit, develop a sense of tolerance.

2. *Communication skills for business*

Develop abilities in English business writing, oral business techniques and email language.

3. *Business/E-Commerce*

To understand and practice the appropriate language for e-Commerce – business, e-Commerce, technical vocabulary.

4. *Virtual Shopping*

To understand and practice the appropriate language for virtual shopping – different types of shops, technical vocabulary, clients and suppliers.

LEVEL 4 QUALIFICATION - DESIGN

LIST OF COURSE UNITS

Core Units

Unit 1: Drawing Techniques and Approaches

Unit 2: Visual Communication

Unit 3: Professional Studies

Unit 4: Historical and Contextual Referencing

Unit 5: Professional Practice and Development

Unit 6: Critical Study

Fashion option units

Unit 7: Fashion and Textile Materials Understanding

Unit 8: CAD/CAM for Fashion and Textiles

Unit 9: Design Exploration in Fashion

Unit 10: Design Application in Fashion

Unit 11: Research & Development for Fashion Design

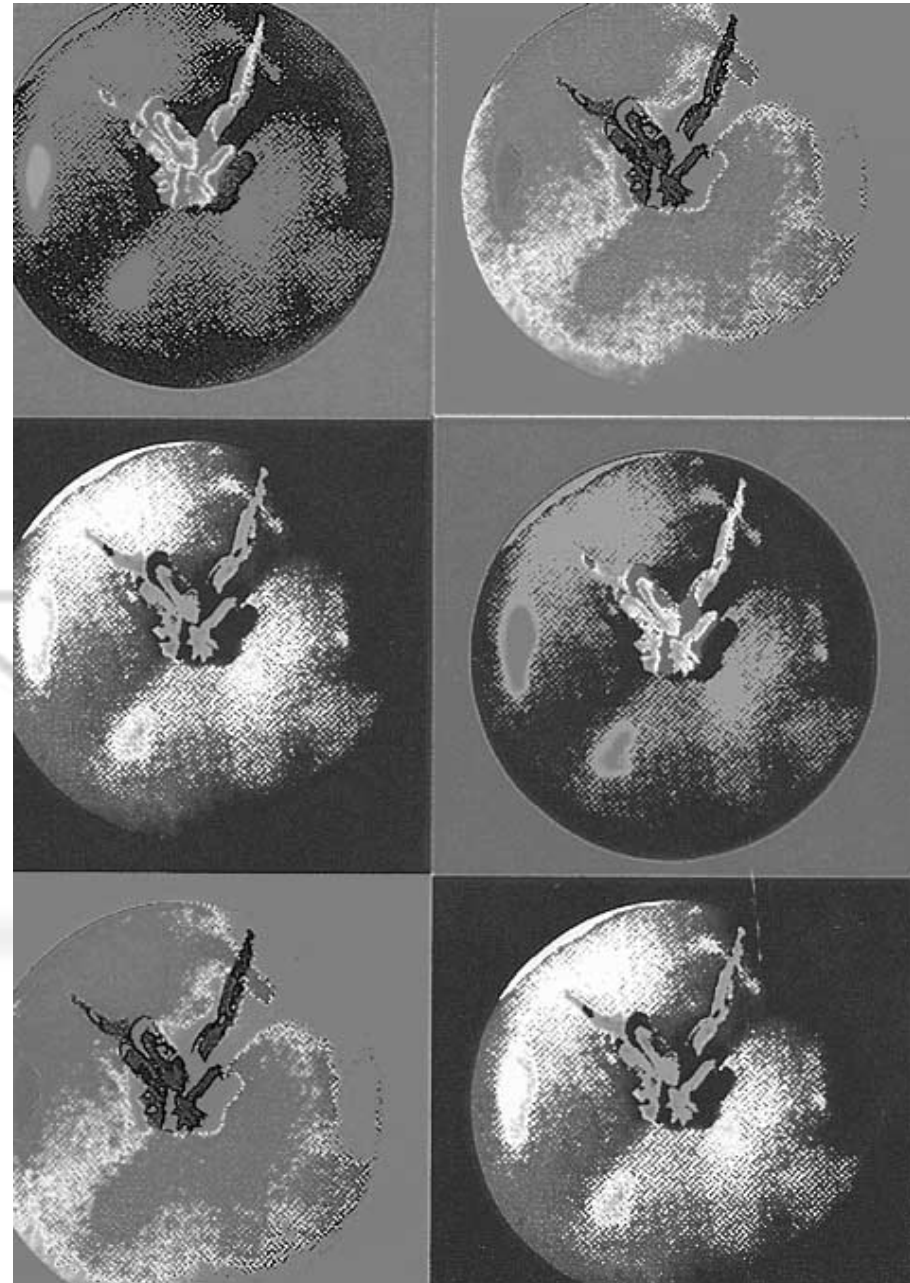
Unit 12: Realising a Fashion Collection

Unit 13: Pattern Construction

Unit 14: Garment Manufacture

Unit 15: Clothing Manufacture Production Operations

Unit 16: Fashion Promotion



DESCRIPTION OF COURSE UNITS

CORE UNITS

UNIT 1: DRAWING TECHNIQUES AND APPROACHES

Unit level: H1

Description: In this unit students will be encouraged to develop visual thinking and creativity as fundamental to all art, design or craft work.

Summary of outcomes:

To achieve this unit a student must:

1. *Comprehend the specific nature and qualities of drawing media and materials*
2. *Demonstrate creative use of drawing techniques and processes*
3. *Develop and extend understanding of visual language*
4. *Evaluate and adapt work for further development*

UNIT 2: VISUAL COMMUNICATION

Unit level: H1

Description. The aim of this unit is to explore the meanings, messages and information that are communicated in art, craft and design work.

Summary of outcomes:

To achieve this unit a student must:

1. *Identify and differentiate between implicit and explicit meanings, messages and information in others' work*
2. *Analyse the methods used in art, craft and design to communicate meaning, messages and information*
3. *Use experimental visual language to communicate meanings, messages and information to specified audience, purchases or user*

UNIT 3: PROFESSIONAL STUDIES

Unit level: H1

Description: This unit is intended to help students relate practical studies in art, craft or design to a professional context.

Summary of outcomes

To achieve this unit a student must

1. *Investigate legislation affecting artists, craftspeople and designers*
2. *Explain professional ethics and responsibilities of artists, craftspeople and designers*
3. *Investigate environmental ethics and social responsibilities of artists, craftspeople and designers*
4. *Examine business organisations and the job roles of artists, craftspeople and designers*

UNIT 4: HISTORICAL & CONTEXTUAL REFERENCING

Unit level: H1

Description: This unit introduces students to the cultural history which informs current thought and debate on art, craft and design.

Summary of outcomes

To achieve this unit a student must:

1. *Undertake research using electronic sources and paper-based materials*
2. *Demonstrate an understanding of influences that have informed current social and creative attitudes*
3. *Present conclusions*



UNIT 5: PROFESSIONAL PRACTICE & DEVELOPMENT

Unit level: H2

Description: This unit serves to draw together the various aspects of students' work to provide evidence of a coherent and presentable portfolio of work which is of a standard acceptable to a commercial employer.

Summary of outcomes:

To achieve this unit a student must:

1. *Display competence within a professional context in the students' area of specialism*
2. *Present an organised portfolio of work of a professional standard*
3. *Produce direct evidence of intended career path in art, craft or design*

UNIT 6: CRITICAL STUDY

Unit level: H2

Description: This unit provides the student with the knowledge, understanding and skills to define and research an historical context and relate it to the present.

Summary of outcomes:

To achieve this unit a student must:

1. *Demonstrate an understanding of the historical evolution and visual characteristics of the work of artists, designers and craftspeople*
2. *Analyse and draw conclusions about specialist work through applying appropriate methods of research and information retrieval*
3. *Investigate how historical, contextual and contemporary practice influences students' specialist pathway*
4. *Draw conclusions from others' writings and critiques about a range of art, craft and design work and present a personal view.*



FASHION OPTION UNITS

UNIT 7: FASHION & TEXTILE MATERIALS UNDERSTANDING

Unit level: H2

Description: In this unit students will research, record and analyse the properties and characteristics of fibres and fabrics, and their suitability for different uses.

Summary of outcomes:

To achieve this unit the student must:

1. *Demonstrate understanding of the main properties of both natural and man-made fibres and sheet materials*
2. *Describe different systems of fabric manufacture and explain how these affect fabric properties and characteristics*
3. *Understand how simple testing methods can be used to assess textile performance in textile and garment production*
4. *Make connections between fibre and fabric properties, processing methods, garment construction and cost.*

UNIT 8: CAD/CAM FOR FASHION & TEXTILES

Unit level: H1

Description: This unit explores the application of computer technology in the design and manufacture of clothing and textiles.

Summary of outcomes

To achieve this unit a student must

1. *Apply computer-aided design techniques to design and visualise fashion and textiles*
2. *Apply computerised systems to aid the design development of garment construction and/or fabric design*
3. *Investigate the use of computer technology to aid the commercial production of fashion and textiles*
4. *Identify technological developments and their potential application within the fashion/textile industry*

UNIT 9: DESIGN EXPLORATION IN FASHION

Unit level: H1

Description: This unit aims to encourage the investigation of materials and experimentation with a variety of media through personal enquiry and discovery.

Summary of outcomes

To achieve this unit a student must:

1. *Explore and experiment with the formal elements of fashion design through illustration*
2. *Develop and expand visual awareness*
3. *Analyse and interpret visual research*
4. *Adapt ideas for creative exploration in work*

UNIT 10: DESIGN APPLICATION IN FASHION

Unit level: H1

Description: The purpose of this unit is to develop students' understanding and approach to fashion design

Summary of outcomes:

To achieve this unit a student must:

1. *Objectively analyse and evaluate the work of fashion designers*
2. *Demonstrate an understanding of design, marketing and production processes within the fashion industry*
3. *Synthesise fashion and textile trends, in visual and market research*
4. *Develop creative design skills, conceptual thinking and visual identity*





UNIT 11: RESEARCH & DEVELOPMENT FOR FASHION DESIGN

Unit level: H2

Description: This unit builds on previous work in “Design Exploration in Fashion” (Unit 20) to develop creative and visual awareness through critical investigation, research, personal enquiry and discovery.

Summary of outcomes

To achieve this unit a student must:

1. *Develop and extend understanding of the design process*
2. *Summarise and present research findings in a personal style*
3. *Extend and apply skills in creative analysis*
4. *Synthesise and evaluate research and experimentation.*

UNIT 12: REALISING A FASHION COLLECTION

Unit level: H2

Description: In this unit students will have the opportunity to design and realise their own fashion collection. This gives students an appreciation of the role of the designer and an understanding of different market sectors, production methods and their related constraints.

Summary of outcomes:

To achieve this unit a student must

1. *Design an innovative collection to a self-identified theme*
2. *Develop a range of garments using information from fashion predictions and trends to inform design solutions*
3. *Demonstrate synthesis of knowledge, skills and understanding to realise designs*
4. *Present, analyse and evaluate their own work*

UNIT 13: PATTERN CONSTRUCTION

Unit level: H2

Description: In this unit, students will learn to translate design ideas into workable patterns.

Summary of outcomes:

To achieve this unit a student must:

1. *Develop fluent pattern construction skills*
2. *Investigate and apply skills to provide pattern grading solutions*
3. *Use pattern construction tools, equipment and technology with safety and confidence*

UNIT 14: GARMENT MANUFACTURE

Unit level: H2

Description: This unit gives students the opportunity to develop greater understanding of manufacturing processes and experience in the use of industrial equipment to produce garments to sample quality.

Summary of units:

To achieve this unit the student must:

1. *Develop garment manufacturing skills to sample quality*
2. *Demonstrate dexterity in the safe use of equipment and technologies*
3. *Create a capsule collection of sample garments*

UNIT 15: CLOTHING MANUFACTURE PRODUCTION OPERATIONS

Unit Level: H2

Description: This unit enables the student to investigate the manufacturing systems and processes in current use in the clothing industry and to investigate the systems used for quality control.

Summary of outcomes

To achieve this unit the student must

1. Investigate the systems currently used in the clothing industry for both pattern and garment production
2. Analyse the merits of the different systems
3. Produce a report on their findings

UNIT 16: FASHION PROMOTION

Unit level: H2

Description: This unit provides the student with an understanding of the essential elements of fashion promotion, enabling them to evaluate their effectiveness and apply knowledge to develop a personal promotional strategy.

Summary of outcomes

To achieve this unit the student must

1. Demonstrate an understanding of fashion communication theory, the promotional mix and promotional planning
2. Investigate, analyse and evaluate strategies adopted by fashion companies
3. Develop a promotion strategy in relation to a fashion collection





APPENDICES

APPENDIX ONE

STRUCTURE AND ORGANIZATION OF THE EDUCATION SYSTEMS IN PORTUGAL, SPAIN AND THE UNITED KINGDOM

INTRODUCTION

This section provides the context for the research activities of the project and the new course proposals provided in Section 5. It shows that each participating Member State has a very different vocational training system that has complicated the design and implementation of transnational qualifications and proved a difficult issue for this project.

In particular, there are significantly different national approaches to the whole concept of vocational education and the accreditation of courses. In fact, as the ensuing reports reveal, these could not be more different if countries had deliberately set out to establish distinctly separate systems.

Moreover, the differences between each country in administrative procedures, educational philosophy and practical approaches to training is further complicated by the different priorities in the curriculum given to social issues such as citizenship and integration that are compulsory for all students.

The wide differences between national systems has required the project to adopt a strictly practical approach rather than recommend a theoretical model that would stand no chance of reaching operational status without action by the European Parliament and European Commission. Consequently, the Subject Working Groups have accepted current national programmes, kept them intact and incorporated them into the framework of the new syllabus proposals. The additional material that students will have to study to meet the demands of the awarding bodies in the other countries is included in supplementary units.

The different national concepts of vocational education are also reflected in the different requirements in each national programme for 'breadth', i.e. the inclusion of subjects or activities additional to the main training.

This has an important consequence in the amount of time allocated to study. It is tempting to say that, generally speaking, in the UK there is more specialisation and a lower minimum number of class hours whilst in Spain and Portugal greater emphasis on breadth requires more hours attendance in class.

But this is misleading because UK Level 4 vocational qualifications are assessed quite differently, include a wide range of options not found in the syllabuses of other countries and need a different type of preparation. In fact there is no easy fix to the issue of breadth and this may be more of a hurdle to reaching transnational agreement than the actual content of the subject units themselves.

Assessment practices are also so different in each country that, during the time constraints of this project, they have only been bridged by the proposal that students follow the new courses proposed in addition to their normal national programme. Nonetheless, even where there is overlap between the national programmes, new assignments will still be needed to meet the different assessment requirements in each country. However, since the subject matter is often very similar, the amount of extra work will be small in comparison to the benefits of mobility.

However, these additional assignments will have to be written and this immediately raises the question of in which language. EDEXCEL offers some flexibility in the submission of assignments in different languages but this is more constrained than it was a few years ago and special arrangements would now have to be negotiated. Assignments submitted for assessment in Spain or Portugal would have to be in the national language. Students in each country would therefore have to study languages in order to take advantage of the mobility conferred by these new qualifications.

Another significant difference between the different national concepts of vocational education lies in the existence (or non-existence) of official training structures such as apprenticeship. Where such structures exist, as in Spain and Portugal, they can support more straightforward opportunities for work placements and work experience than in the UK. Compulsory work placements or experience are therefore more likely to feature in the syllabus requirements of Spain and Portugal, even though they greatly increase the number of student hours and the time taken to complete the qualification.



PORTUGAL

1. Basic principles

The Comprehensive Law on the Education system of October 1986 established the general framework for the reorganisation of the Portuguese education system. Education is now compulsory between the ages of 6 and 15. It is free as regards fees and other payments related to enrolment, school attendance and certificates. Students pay enrolment and tuition fees for both post-compulsory secondary and higher education.

2. Distribution of responsibilities

The education system covers the whole of Portugal – the mainland and the autonomous regions of Azores and Madeira. Education policy in general is determined by the Ministry of Education (Ministério da Educação – ME) which essentially deals with the design, development, coordination, evaluation and inspection of education and training. ME makes decisions with regard to the establishment and general organisation of schools and the employment of staff, and issues guidelines on the content of pre-school education and the curricula for basic and secondary education.

Five Regional Directorates of Education (Direcções regionais de educação) on the mainland implement ministerial policies and provide guidelines, co-ordination and support to all non-higher education establishments. In co-operation with the Department of Higher Education they also co-ordinate and implement measures on admission to higher education. In the autonomous regions of Madeira and the Azores, education administration is the responsibility of regional governments through their respective secretariats of education.

The financing of public education is basically provided by Central Government through the Ministry of Education, although local authorities have some responsibility. The regional administration of the autonomous regions finance, with their own resources and with state budgetary transfers, educational services and establishments. Public universities and polytechnics have administrative, financial academic and pedagogical autonomy.

Inspection is the responsibility of the General Inspectorate of Education (Inspeção Geral da Educação), which manages educational and technical supervision and the monitoring of education establishments as well as the financial and administrative efficiency of the education system as a whole. The Inspectorate has decentralised regional delegations which are responsible for the pedagogical, administrative and financial supervision of the education system in their respective areas.

3. Structure

A. Pre-compulsory education

Pre-primary education is optional from the ages of 3 to 5, and is provided in both state-run and private nursery schools (Jardim de Infancia). State-run nursery provision is free of charge; fees are payable for private nursery schools.

In general, pre-school education consists of a series of activities based on objectives and non-compulsory guidelines laid down by the Ministry of Education. These relate to the role to be played at nursery schools by expression through movement, and dramatic, visual and musical expression, learning Portuguese and mathematics.

B. Compulsory school education (ensino básico)

Compulsory education lasts nine years, from 6-15 years of age, and is divided into three stages:

- First stage 6 -10 years of age
- Second stage 10 -12 years of age
- Third stage: 12 -15 years of age

The Ministry of Education determines the curriculum, but schools can adapt its organisation to local circumstances. Teaching methods are outlined in the Ministry of Education guidelines and defined at school level by a subject delegate, of whom there is one for each curricular area. The Ministry of Education is involved in the publication of compulsory course materials; other textbooks are produced commercially.

The specific objectives of the first stage are the development of oral language, reading and writing, arithmetic, knowledge of the physical and social environment and visual, dramatic, musical and motor expression.

The curriculum of the second stage, compulsory for all pupils, is organised into five multidisciplinary areas: language and social studies including Portuguese language, history and geography, and a foreign language; mathematics and natural sciences, artistic and technological education; physical education; personal and social education, plus a "school area" of projects which aim to enhance learning, to make pupils aware of the connection between the school and the environment and to contribute to their personal and social development.

The curriculum for the third stage includes: Portuguese language, foreign language, human and social sciences, mathematics, physical and natural sciences, visual education and physical education.

Students are assessed through a combination of teachers' assessment and testing which is regulated nationally. At the end of the third stage (the last year of compulsory schooling) students must pass a test whose subjects comprise all third-stage curricular subjects. Those who have demonstrated satisfactory attendance and passed the examinations are awarded a basic education certificate (Diploma de Ensino Básico), those who have attended but failed the final assessment receive a certificate confirming they have completed compulsory education.

C. Post-compulsory education (ensino secundário)

On completion of compulsory schooling, students can opt for one of three different types of courses: secondary school courses, vocational studies in vocational schools (escolas profissionais) or art education courses.

Secondary school courses

This type of education lasts for three years (15-18 year olds) and to enter students must have successfully completed the nine years of basic compulsory education.

Two different types of courses are organised:

- secondary courses predominantly leading to further studies (general education)
- secondary courses predominantly oriented towards working life (technical education)

Both courses are compulsory in all schools and students can change from one type to the other.

Courses are organised into four subject groups; scientific and natural, arts, economic and social, and humanities. Within each of these groups, separate programmes are designed for general and technological students. The core subjects in both general and technological education are Portuguese, a foreign language, introduction to philosophy, physical education, personal and social education or religious education.

Assessment is carried out on a continuous internal and external basis. National final examinations are taken at the end of the three years and successful students receive a certificate (Diploma de estudos secundários). Those completing the technological courses also receive a level III vocational qualification certificate (Diploma de qualificação profissional)

Vocational school courses

The vocational schools, set up in 1989, constitute an alternative to the normal education system and prepare pupils for working life and strengthen the links between school and work. They aim primarily to meet local and regional needs, through diversified courses within each area of training. The minimum requirements for admission vary according to the course, but students should normally have completed compulsory education or obtained an equivalent qualification.

Most courses last three years and include socio-cultural, scientific, technical/technological and practical training in varying proportions according to the starting level of the pupil and the vocational qualification aimed at. The socio-cultural component includes Portuguese, a foreign language and social integration, the other components vary according to the course.

Assessment is practical and continuous. Successful pupils are awarded a secondary school leaving certificate (Diploma de estudos secundários). A vocational qualification certificate is also awarded to students who have passed a vocational aptitude test.

Art education courses

There are various types of training in the field of art provided at secondary schools, vocational schools and specialist art schools. Secondary schools provide general courses for students who wish to continue their studies and technological courses in design and arts and crafts which lead to a level III vocational qualification. Vocational schools offer training in various fields of art including graphic arts, textiles, pottery, jewellery, fashion, cinema, audiovisual, dance, drama and music. Specialist art schools offer their own curricula in the fields of dance, music and visual arts, where specialist training is provided for students with recognised aptitudes and talents in these areas.

D. Higher education

All the options for continuing studies are included within the framework of university or polytechnic higher education. There are both public and private universities and institutes; all have fully independent powers to manage their academic, pedagogical, administrative, financial and disciplinary affairs and their own assets.

Access to higher education (subject to a maximum intake fixed each year by the relevant management body) is open to students who have

- gained a Certificate of secondary education
- passed a nationally organised aptitude test (prova de aferição)
- passed specific tests (provas específicas) set for each course by the relevant higher education institution.



Universities offer courses in all fields of study (humanities, social and behavioural sciences, business and management training, law, natural and exact sciences, mathematics and computer science, engineering sciences and technology, medical sciences, agriculture and town planning and physical education) and are more academic and theory oriented. These courses may last four, five or six years and lead to licenciado degrees. Polytechnic education is specifically vocational and covers study areas such as agriculture, education, technology, management, accountancy and administration, engineering, art, nursing, sailing, conservation and restoration. Courses last for three or four years and lead to a bacharelato or licenciado degree respectively.

E. Vocational training

A system of apprenticeship, based on co-operation between education, training and the labour market is available for young people between 14 and 24 years of age, who have completed at least six years of compulsory education. Those who have not completed compulsory education have access to pre-apprenticeship courses.

Apprenticeship is formalised in an apprenticeship contract, lasts from one to four years and comprises general, technological and practical training, which is continually assessed and leads to a national examination in the final year. Successful trainees receive a certificate of vocational aptitude (Certificado de aptidão profissional)

4. Teachers

In accordance with changes introduced in 1997 into the Basic Law for the Education System, nursery school and basic education teachers can be trained in teacher training colleges, provided that the colleges meet a number of legal requirements, whilst secondary school teachers can only be trained in universities. All initial teacher training courses now last four years and lead to a licenciatura degree.

All teachers in state schools are civil servants.

SPAIN

Andalucía, Galicia and Madrid

1. Basic principles

In 1990, the Basic Law on the General Organisation of the Education System (Ley Orgánica de Ordenación General del Sistema Educativo – LOGSE) initiated a process of complete reform of the non-university education system, which will be completed for the school year 2002-2003.

Education is compulsory up to the age of 16, the minimum legal working age, and is free of charge in publicly funded schools. Education funding comes from both public and private sources. It finances not only state education, but is also used to subsidise some private institutions and to pay students grants and allowances. The greater part of public funds is spent on staffing costs for teachers in public and subsidized private institutions.

Spanish (Castellano) is the official language of Spain and all Spaniards have a duty to learn it and the right to use it. Basque, Catalan, Galician and Valencian are also official languages within their respective Autonomous Communities and used as teaching languages with Spanish.

2. Distribution of responsibilities

Responsibilities are divided between the State and the 17 Autonomous Communities into which the country is divided. Central government, in the form of the Ministry of Education and Science (MEC), retains responsibility for the general regulation of the education system, including basic legislation, the regulation of the validation of certificates and degrees, recognition of teaching qualifications and definition of minimum curriculum requirements.

Non-school or vocational training is the responsibility of the Ministry of Labour and Social Security in collaboration with the National Employment Institute and the regional governments.

The state inspection service monitors the structure and organisation of the education system. The seven regional governments with full educational powers carry out their own technical inspections. These have a dual purpose: to provide guidance and support for education work and to monitor and evaluate the educational system in order to ensure that its educational objectives are satisfactorily met.

3. Structure

A. Pre-compulsory education (Educación infantil)

Pre-school education is optional. It is divided into two stages: for children from 0 to 3 years old and from 3 to 6 years old. Education is free in the second stage in public institutions although parents may pay certain costs (textbooks, catering, transport) depending on their income.

The curriculum is centred on three subject areas which relate directly to the experience and development of young children: identity and personal independence, the physical and social environment, and communication and representation.

B. Compulsory education (*educacion general basica*)

The period of compulsory education is divided into two stages: Primary Education, for pupils aged 6 to 12, and Secondary Education, for pupils aged 12 to 16.

Around 75% of students attend public sector schools.. Private establishments are normally run by associations, the Catholic Church or other religious groups and may be divided into subsidized and non-subsidized institutions, depending on whether they receive public funding. Subsidized schools must provide education free of charge and observe government guidelines on admission criteria, recruitment of staff and minimum curriculum and examination requirements. Non-subsidized private schools must adhere to general government guidelines, but have complete freedom of internal organization, choice of teachers, admission requirements, rules of conduct, and financial administration.

Primary education (*Educación Primaria*)

Primary education lasts six years and is divided into three two-year stages, corresponding to ages 6 to 8 years, 8 to 10 years and 10 to 12 years respectively. The minimum core curriculum includes study of the environment, artistic education, physical education, Spanish language and literature, mathematics and a foreign language. Religion is compulsorily offered but is voluntary for pupils.

The Autonomous Communities with two official languages, Spanish and their own language, can devote 10% of the total time allocated to languages teaching to the teaching of their own language.

Compulsory secondary education (*Educación Secundaria Obligatoria*)

Compulsory secondary education is divided into two two-year cycles, corresponding to ages 12 to 14 and 14 to 16. Access to this stage is automatic upon satisfactory completion of primary education. Its purpose is two-fold: to complete compulsory study and provide access to employment; and to prepare for post-secondary education.

The core curriculum covers Spanish language and literature, the official language and literature of the respective Autonomous Community, a foreign language, mathematics, physical education, natural sciences, plastic and visual arts, music, technology social studies, geography and history. Religious knowledge is compulsorily offered but is voluntary for pupils.

There is no national or regional system of testing. The minimum core curriculum includes basic guidelines for assessment, which must be global and continuous. While in primary education the form teacher is responsible for decisions on promotion to the next class, in compulsory secondary education all the pupil's teachers decide on promotion collectively.

Pupils who achieve the required standard at the end of compulsory secondary education receive a certificate of secondary education (*Graduado en Educación Secundaria*). This qualification enables the pupil to gain access to general upper secondary education (*Bachillerato*) or intermediate level specific vocational training (*Formacion Profesional Especifica de grado medio*).

C. Post compulsory education

The two types of upper secondary education may be provided separately or in the same institution.

BACHILLERATO

The Bachillerato course lasts for two years, from 16 to 18 years of age. The minimum core curriculum is determined at national level, but the Autonomous Communities and the schools can develop and adapt it to suit their own local conditions. There are four kinds of Bachillerato: arts, natural and health sciences, humanities and social sciences, and technology. Common core subjects are physical education, philosophy, history, Spanish language and literature, the official language and literature of the respective Autonomous Community and a foreign language.

Pupils are subject to continuous assessment throughout the course and only those who have passed in all subjects receive the Bachillerato certificate. This certificate entitles them to move on to higher level vocational training or university studies. In the latter case, students are also required to pass a university entrance examination (*Pruebas de Aptitud para el Acceso a la Universidad* or *PAAU*) commonly known as *Selectividad*.)

Intermediate Level Specific Vocational Training (Formación Profesional específica de grado medio)

Specific vocational training is designed to facilitate integration into working life. The curriculum includes theoretical and practical training organised on a modular basis, while core subjects vary according to the module. Courses cover a wide range of vocational subjects including administration and management, agriculture; graphic arts, sales and marketing, construction, electricity and electronics, hotels and tourism, wood and furniture, industrial mechanics, chemistry; health, socio-cultural services and textiles.

Assessment is continuous and successful students at intermediate level receive the qualification of *Técnico* (Technical Specialist). Those who obtain this qualification may gain access to specific Bachillerato courses related to the subject of their vocational studies or can continue their studies to Advanced level Specific Vocational Training.



D. Higher education

Higher Education includes a variety of institutions including public and private universities, public institutions delivering advanced level art and music education and higher technical colleges. The fees of public institutions are set by each Autonomous Community or by the government in areas where the local authorities have not taken on educational powers. Private universities are entitled to set their own fees.

Universities approve their own curricula, following the general guidelines laid down by the government for each qualification. Courses are structured into

- one cycle (lasting three years)
- two cycles without an intermediate qualification (five to six years)
- two cycles with an intermediate qualification (five to six years)
- third cycle corresponding to a Doctorate (minimum two extra years)

All three cycles may be studied at university faculties or at higher technical colleges and are assessed on the basis of examinations. The Diplomado, technical architect and technical engineer degrees are earned after completing one cycle studies, and Licenciado, architect and engineer degrees after two cycle studies.

A different degree with its own structure and entry requirements applies in the arts field, while successful students in advanced level specific vocational training receive the qualification of senior technical specialist (Técnico Superior).

E. Occupational vocational training (formación profesional ocupacional)

With the aim of matching vocational training more closely to the needs of the labour market, the National Vocational Training Programme (Programa Nacional de Formación Profesional), brings together the two vocational training systems currently in force. These are “regulated” vocational training provided by the education system, and “occupational” vocational training covered by the National Training and Professional Insertion Plan administered by the National Employment Institute (INEM) or the Autonomous Communities with full powers over vocational training.

Occupational training courses (Formación ocupacional)

The General Council for Vocational Training (Consejo General de Formación Profesional) advises the Government on matters concerning regulated and occupational vocational training and vocational guidance. It also draws up (with Government approval) and monitors the implementation of the National Vocational Training Programme (Programa Nacional de Formación Profesional).

INEM and the Autonomous Communities are responsible for the provision of occupational vocational training within their respective fields of competence. In addition, other public and private bodies, the social partners and professional

organizations participate, channelling their contribution via “Programme Contracts” and co-operation agreements. The Ministry of Labour and Social Security is responsible for funding and managing the training institutions, through INEM and the Autonomous Communities with devolved powers.

The minimum age for admission to occupational training courses is 16 and this type of training is available throughout a person’s working life. Training is provided by the INEM’s occupational training centres, by centres run by the Autonomous Communities, by co-operating centres and firms and in collaboration with other administrative authorities. Courses are predominantly practical in nature and can be classified as broad-based, (lasting on average 950 hours), occupational (on average 350 hours) or specialized (on average 250 hours).

Students who successfully complete the training receive a vocational certificate (certificado de profesionalidad). The Ministry of Employment and Social Security, in collaboration with MEC is compiling a national index of vocational certificates with the aim of establishing a system of comparability and equivalence between “regulated” vocational training courses and knowledge acquired during “occupational” training and work experience schemes.

Workshop-schools (escuelas taller) and skilled craft centres (casas de oficios)

Occupational training is also carried out by workshop-schools and skilled craft centres, which offer public employment-training programmes to the unemployed, and particularly those under 25. Both also offer specific programme for students who have not completed compulsory secondary education. Courses combining theoretical and practical elements aim to improve students’ employment opportunities in occupations related to the restoration or promotion of the artistic, historical, cultural or environmental heritage and the improvement of living conditions in urban areas.

Successful students receive a certificate, which states the hours of training, qualification acquired and training modules completed. This certificate may be totally or partially accredited by the certificado de profesionalidad mentioned above.

4. Teachers

Teachers in public institutions are civil servants. Access to a permanent state teaching post, whether it be pre-school, primary or secondary is by means of a competitive examination.

Pre-primary and primary teachers must have a Maestro teaching diploma, gained after three years at a university level teacher training college. Primary teachers are generalists and are trained to teach all subjects except music, physical education and foreign languages for which specialist teachers are employed.

Secondary teachers are specialists in one subject and must have a Licenciado, or architecture or engineering degree, gained after four to six years study, plus a teaching qualification, awarded after a further year's study.

University professors must hold a doctorate, other university teachers must have a Licenciado or architecture or engineering degree.

Catalunya

The 1978 Constitution determines the distribution of responsibilities between the Spanish State and the 17 Autonomous Communities into which the country is territorially divided. The respective Statutes of Autonomy (Estatutos) constitute the Autonomous Communities' basic institutional law, which the State recognises and upholds as an integral part of its legal system.

In terms of education (pre-school, primary and secondary education, vocational training and higher education) the Constitution identifies a series of areas over which the State has exclusive competence and others for which the Autonomous Communities may assume responsibility.

An Autonomous Community assumes full powers when it takes over all the regulatory and executive responsibilities not included within the State's exclusive area of competence. It then has the power to develop the State regulations and to regulate the non-basic elements of the education system within its own territory. At present, while all the Autonomous Communities have full powers at the University level, in the case of non-university level some Autonomous Communities have assumed full educational powers, while others continue to be administered by the Ministry of Education and Culture.

1. Basic principles of education

Since the academic year 1994-95 the Government of the Autonomous Community of Catalunya (Generalitat de Catalunya) has been progressively introducing the model of educational reforms introduced throughout Spain under the Basic Law on the General Organisation of the Educational System of 1990 (LOGSE). This was completed by the end of the academic year 2000-2001. Basic education is compulsory and free of charge up to the age of 16.

Spanish is the official language of the Spanish State and therefore all Spanish citizens are under the obligation to know it and have the right to use it. However, Catalan has co-official status and both it and Spanish are mandatory in education at the non-university level within Catalunya.

2. Division of responsibilities

The Autonomous Communities have regulatory powers and are responsible for the implementation of basic State standards and regulation of non-basic aspects of the education system and for the executive and administrative duties involved in administering the education system in their respective regions. They also have responsibility for the teaching of their own co-official

languages which, together with Spanish, are official in the different regions. Catalunya is one of the Autonomous Communities which enjoy full powers over education and therefore exercises complete functions of regulation and administration of the education system. The Generalitat's Education Department (Departament d'Ensenyament) holds administrative title to the establishments in its region and is empowered to create, authorise and operate public and private educational institutions and administer the personnel, construction, equipment and reform of these institutions. It may also enlarge on State provisions regarding educational curricula and the regulation of levels, grades and specialisms, carry out experimental and pedagogical research, process and grant subsidies for private educational establishments, administer scholarships and study grants and regulate the composition and functions of the regional School Council.

The regional Ministry of Education and Culture Education Office handles the functions and services that remain the State's responsibility.

3. Structure

The structure of education in Catalunya follows the common Spanish framework as laid down by LOGSE.

a. Pre-compulsory education

Nursery education covers the period from 0-6 years and is optional. It is organised in two cycles of three years each: 0-3 and 3-6 years respectively. Both focus on the personal and social development of the pupils: communication and relationships with others, the observation and discovery of their community and environment and the acquisition of appropriate values, habits and behaviour. Religious instruction is provided by all schools but is voluntary for pupils.

B. Compulsory education

Education is compulsory between the ages of 6 and 16. This period is divided into two stages: Primary education from 6-12 and compulsory secondary education from 12-16.

Primary education

Primary education is divided into three two year stages: Initial (6-8 years), Middle (8-10 years) and Superior (10-12 years). Pupils join the initial stage the year they become 6 years old. The basic aim is to provide a common education which further encourages personal and social development and the acquisition of basic cultural skills, oral expression, reading, writing and arithmetic.

The curriculum covers Catalan language and literature, Spanish language and literature, foreign languages, the social, cultural and natural environment, music, visual and plastic arts, physical education and mathematics. Religious knowledge is offered, but is voluntary for pupils.



Compulsory secondary education

Compulsory secondary education lasts four years and is divided into two two-year stages. It aims to consolidate pupils' knowledge and skills and prepare them for further studies and employment.

The curriculum covers Catalan language and literature, Spanish language and literature, foreign languages, natural and social sciences, physical education, technology, music, visual and plastic arts and mathematics. Religious knowledge is offered, but is voluntary for pupils. While 65 % of curriculum time is obligatory for all pupils, 35% consists of options chosen by the pupils themselves.

Pupils who successfully complete compulsory secondary education receive a certificate of secondary education (Graduat en Educació Secundària) and can then continue their studies on to Batxillerat or follow an intermediate specific vocational training course. Pupils who do not obtain this certificate receive a certificate of school attendance. Social Guarantee programmes are organised for such pupils in order to provide them with basic and vocational training that will enable them to take active part in the working world or to continue their studies.

C. Post-compulsory education

Batxillerat

The Batxillerat course lasts for two years, from 16-18 years of age and is offered in four main subject areas: Arts, Natural and Health Sciences, Humanities and Social Sciences and Technology. It aims to prepare students for further studies, both professional and academic, within the context of the European environment and the world of work.

Students who pass in all parts of their subject area receive a Batxiller diploma which enables them to continue their studies either at university or in advanced vocational training. Those wishing to continue their studies at university must also pass an entrance examination (selectivitat).

Intermediate Level Specific Vocational Training (Formació professional de grau mitjà)

Although the normal qualification for access to vocational training is the certificate of secondary education, under certain circumstances students who have successfully completed a Social Guarantee programme or a period of work experience will also be accepted.

Vocational training is designed to prepare students for working life by allowing them

- to develop appropriate skills for their chosen trade or profession
- to acquire a knowledge and understanding of the corresponding work sector

Courses, which last from one to two years, cover a wide range of vocational subjects and include both educational study and periods of practical training in the workplace. The latter are obligatory and are carried out in companies or organisations which have agreements with the Departament d'Ensenyament.

Successful students receive the qualification of Tècnic and may either continue their studies to Advanced Level Specific Vocational Training or enter Batxillerat courses.

d. Higher education

In Catalunya there are a variety of higher education institutions including public and private universities, public institutions offering advanced art and music education and higher technical colleges.

Universities

There are

- seven public universities: the University of Barcelona, the Autonomous University of Barcelona, the Polytechnic University of Catalunya, the University Pompeu Fabra, the University of Girona, the University of Lleida and the University Rovira i Virgili, and
- three private universities: the University Ramon Llull, the University of Vic and the International University of Catalunya,

which offer courses of one cycle (three years) leading to the degree of Diplomant, Mestre, Arquitecte Tècnic or Enginyer Tècnic, or two cycles (five to six years) leading to the degree of Llicenciat, Arquitecte or Enginyer. A third cycle, lasting a minimum of two years, leads to a Doctorat.

Arts and music (Ensenyaments de règim especial)

Special courses are available in Plastic Arts and Design, Cultural Conservation and Restoration, Music, Dramatic Art, and Dance. A different qualification structure with its own entry requirements and qualifications applies.

Advanced Level Specific Vocational Training (Formació professional de grau superior)

Although the normal qualification for entry to Advanced Level Vocational Training is the Batxillerat, courses are also open to applicants who do not have all the academic requirements, provided they are able to pass a specific test proving that their background and/or previous experience will enable them to take full advantage of the training.

Students who successfully complete advanced level vocational training receive the qualification of senior technical specialist (Tècnic superior). This entitles them to pursue University courses in fields related to their vocational training.

E. Occupational vocational training

In addition to vocational training provided in schools, the National Employment Institute (INEM) and the Autonomous Communities are responsible for the provision of occupational vocational training under the National Vocational Training Programme.

The minimum age for admission to occupational training courses is 16 and this type of training is available throughout a person's working life. Training is provided by the INEM's occupational training centres, by centres run by the Autonomous Communities, by co-operating centres and companies, and in collaboration with other administrative authorities. Courses are predominantly practical in nature and can be classified as broad-based (average 950 hours), occupational (average 350 hours) or specialised (average 250 hours). Students who successfully complete the training receive a vocational certificate.

4. Teachers

Teachers in public institutions are civil servants. Access to a permanent state teaching post is by means of competitive examination.

Infant and primary teachers must have a Mestre teaching diploma: secondary teachers must have a Licenciat plus a teaching qualification.

The Generalitat Education Department has established a series of teachers centres (Centre de recursos pedagògics) to plan and develop non-university teacher training, to support teachers with educational resources, to act as social and cultural centres and to counsel teachers and educational team

THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

1. Basic principles

Education provision is based on the principle that all children between the ages of 5 and 16 (4-16 in Northern Ireland) must receive full-time education, either by attendance at school or by approved alternative provision. The school curriculum during these compulsory years is designed to be balanced and broadly based and to be suited to the child's age, ability, aptitude and to any special educational needs he or she may have.

All children between the ages of 5 and 16 are entitled to free education in the state system. Any subsequent full-time education provided at schools or at further education institutions is also free for students up to the age of 19. Students attending higher education institutions normally pay fees.

The language of instruction throughout the UK is English. However, in Wales, the Welsh language is part of the National Curriculum, there are Irish medium schools in Northern Ireland and Gaelic medium schools in Scotland.

2. Distribution of responsibilities

The appropriate department carries out administration of education at national level. The Department of Education and Employment (DfEE) in England, the National Assembly for Wales Education Department, the Education Department (DENI) and the Department of Higher and Further Education, Training and Employment (DHFETE) in Northern Ireland, and the Scottish Executive Education Department (SEED).

While the education and training systems of England, Wales and Northern Ireland are broadly similar, the education system in Scotland has always had its own laws and practices. Differences in education and training across Britain are particularly marked in the school systems but less so at higher education and for training.

Local education authorities (in England and Wales) and Education and Library Boards (in Northern Ireland) are responsible for organising publicly funded school education within their area. Under the system of Local Management of Schools, they are required to delegate at least 85% of the potential schools budget to schools. Schools are substantially free to decide how to spend the budget allocated to them and to determine staffing levels.

In Scotland, state schools receive their funding from Scottish Local Authorities. Under Devolved School Management local authorities delegate most of the control of the school budget to school level, with the bulk of the funding related to pupil/students numbers.

Higher education institutions are legally independent corporate institutions, accountable through individual governing bodies, which carry ultimate responsibility for the institution.

3. Structure

A. Pre-compulsory education

Since April 1999, in England and Wales, nursery provision has been provided free of charge to all four-year olds whose parents want it, in maintained, voluntary and private establishments. Provision for three year olds in maintained nursery schools and classes is currently funded at the discretion of the Local Education Authority (LEA). Attendance at pre-primary level in Scotland is optional.

B. Compulsory education

Parents have a legal duty to ensure that their children obtain education between the ages of 5 and 16 (4 and 16 in Northern Ireland). Most children in this age group attend a school, though a small minority is educated by private tuition. In most areas, children aged five to 10 attend primary schools and move on to secondary schools at 11 for education up to the age of 16 or beyond.





The majority of pupils - over 90 per cent – go to publicly funded or “state” schools, which make no charge to parents. About seven per cent of pupils in England and 4 per cent of those in Scotland attend independent schools. Although these schools are not funded by the state and are financed by fees, they are subject to government inspection to ensure that they maintain acceptable standards of premises, accommodation and teaching. All state schools are inspected every six years.

All state schools in England Wales and Northern Ireland must conform to the National Curriculum. This sets out what subjects pupils should study, what they should be taught and what standard they should achieve, and is designed to give all young people access to a broad and balanced education and help them to develop the qualities and skills needed in adult and working life.

The period of compulsory education is divided into four key stages, depending on pupil age:

- Key stage 1 – pupils aged 5 to 7
- Key stage 2 – pupils aged 7 to 11
- Key stage 3 – pupils aged 11-14
- Key stage 4 – pupils aged 14-16

In England and Wales, compulsory subjects for KS1-3 include English (and/or Welsh), mathematics, science, design and technology, physical education, history, geography, art and music. Pupils at KS4 must study English, mathematics, science, physical education, technology and a foreign language. The curriculum in Northern Ireland includes five compulsory areas of study from KS1-4: English, mathematics, science and technology, environment and society and creative and expressive arts, while languages are included at KS3 and 4. Pupils are assessed on entry to compulsory education and at the end of each key stage. At the end of compulsory education the majority take General Certificate of Secondary Education Examinations (GCSEs).

In Scotland there is no prescribed national curriculum, but guidelines on the curriculum provide the framework within which schools work. At primary level pupils are assessed through a combination of teachers’ assessment and national tests. In secondary pupils are assessed by continuous assessment, based on coursework, written examination and national tests. At 16 pupils take the Scottish Qualification Certificate at Standard Grade.

C. Post-compulsory education

After the age of 16, young people have choices at upper secondary/post-secondary level. Around 70 per cent stay in education, either at school or sixth form colleges, or at further education colleges or specialist institutions which offer largely vocational education courses. Post-compulsory education is free of charge up to the age of 19.

There are no formal qualifications for admission to post-compulsory education, although schools and colleges may set specific requirements for admission to individual courses. There are no compulsory subjects and students choose courses of study from the range offered by the school or college

A range of qualifications is available to students at post-compulsory level. In England, Wales and Northern Ireland the most common are the General Certificate of Education Advanced level/Advanced Subsidiary level (GCE A level/AS levels), General National Vocational Qualifications (GNVQs) and National Vocational Qualifications (NVQs). Forms of assessment depend on the qualification and awarding body, but may include written, oral and practical examinations or continual assessment. NVQs are not assessed through examinations but require candidates to demonstrate their competence in specified tasks.

In Scotland qualifications at this level include the Scottish Certificate of Education examination at Higher Grade (Highers), Advanced Higher Grade and Scottish Group Awards and Scottish Vocational Qualifications (SVQs)

From April 2001, a national Learning and Skills Council in England (LSC), together with 47 Local Learning and Skills Councils, and the National Council for Education and Training in Wales (CETW), will assume responsibility for the planning, funding and quality assurance of all post-16 education and training (excluding higher education).

D. Higher education

A large proportion of young people (about one third in England and Wales and almost half in Scotland) continue in education at a more advanced age beyond the age of 18. The higher education sector provides a variety of courses up to degree and postgraduate degree level and carries out research. University students generally work towards a first (usually Bachelor’s) degree during their three or four year course.

The higher education structure is common to England, Wales, Northern Ireland and Scotland. All major higher education institutions are independent and autonomous, able to appoint their own staff, and to decide what and how to teach and which degrees to award.

Each determines its own admissions policy and requirements; in most cases applicants require GCE A level, GNVQs or equivalent qualifications.

The Higher Education Funding Councils for England and Wales administer and allocate funds to support education and research in higher education institutes, while in Northern Ireland funding is through the Department of Education for Northern Ireland. Tuition fees are payable by students. The government provides financial support for maintenance, means tested against parental income, but this is repayable when students have graduated and are in work.

The Scottish Executive has recently agreed to new arrangements for the funding of Higher and Further Education in Scotland. The measures proposed include the abolition of tuition fees for all Scottish Higher and Further Education students in Scotland, the targeting of payments to students from lower income families and a graduate endowment plan which will allow students to make a deferred contribution.

e. VOCATIONAL TRAINING

Non-university level post-secondary technical education is provided by technical colleges, colleges of further and higher education and accredited independent colleges which offer a large number of vocational courses leading to a higher professional qualification which may be used for work or for entry at a second/third year of University.

At the age of 18 pupils may choose to continue their academic career or enter a business and technology college for a Higher National qualification. Various foundations (for example EDEXCEL) accredit two main types of Higher Qualification:

- The Higher National Certificate (HNC)
- The Higher National Diploma (HND)

Normally there are no formal entry requirements. Each college has its own entry requirements, according to the basic following scheme:

- an Advanced GNVQ in any subject
- a BTEC National Certificate or Diploma
- at least one A level pass, with appropriate GCSEs at grades A, B or C
- for mature candidates: appropriate work experience.

Work-based training

Young people beyond compulsory school age who do not continue in school or further education have access to work based training. Training is usually aimed at providing skills and knowledge applicable to a particular job or occupation. The majority of all work-related training is provided or paid for by employers for their employees. The government's role is based on developing partnerships at national and local level to help provide a framework of recognised qualifications and an effective system for identifying and meeting training needs.

4. Qualifications

There are broadly two educational and training systems within Britain: The first includes England, Wales and Northern Ireland; and the second, Scotland. Measures are being taken within both systems to increase flexibility and breadth. There is close co-operation between the regulatory bodies in England, Scotland, Wales and Northern Ireland.

A. England, Wales and Northern Ireland

The Qualifications and Curriculum Authority (QCA) is responsible for a comprehensive qualifications framework, including the accreditation for National Vocational Qualifications (NVQs).

General Certificate of Secondary Education.

GCSEs are normally taken at age 15-16 and can be taken in a wide range of subjects. Pupils are tested by assessment of work during the course and examinations at the end of the course. Passes are graded from A to G ('A' being the highest grade).

General Certificate of Education Advanced level.

GCE A levels are the main academic qualification for entry to higher education and are normally taken by pupils at age 18 or over. They are tested mainly by examination at the end of the course.

GCE Advanced Supplementary level examinations.

AS levels are at the same standard as GCE A levels, but each examination covers less content.

General National Vocational Qualifications.

GNVQs combine general and vocational education and provide a path into both education and employment. They are broadly based vocational qualifications incorporating the skills required by employers and are designed to develop the skills and understanding needed in vocational areas such as business, engineering or health and social care. They are normally studied in school or college.

National Vocational Qualifications.

NVQs are specific to occupations. Based on the competences required in particular occupations, NVQs are made up of a number of units that set out industry-defined standards of occupational competence. These describe the skills and knowledge people need to be able to perform effectively at work and are assessed against these standards largely by observation in the workplace. The NVQ/SVQ framework is divided into 11 areas, each relating to a major sector of industry/commerce. Within each of the 11 areas, NVQs at various levels are available for nearly all occupations. These qualifications each offer the prospect of progression into higher education or work.





Higher National Certificates (HNC) and Higher National Diplomas (HND).

Built from Higher National Units, HNCs and HNDs are modular courses of vocational study taken mostly at college and may allow advanced entry into a degree course.

Degrees and Diplomas.

These are available in a wide range of academic and vocational subjects and are delivered through higher education institutions.

B. Scotland

The Scottish Qualifications Authority

(SQA) is responsible for the majority of qualifications available in Scotland's education and training system, excluding degrees and some professional qualifications. The SQA both accredits and awards Scottish Vocational Qualifications.

Scottish Certificate of Education at Standard and Higher Grades. Usually taken in secondary school and primarily assessed by external examination. Higher Grade is generally recognised as doing the same task as GCE A level and is the usual entry qualification for university.

Certificate of Sixth Year Studies. CSYS builds on higher Grade, encouraging independent study in preparation for higher education and the world of work. Assessment is by external exam and in most cases, dissertation or project report.

General Scottish Vocational Qualifications (GSVQs) Made up from National Certificate Unit framework of vocational study, GSVQs are broad-based qualifications which give candidates practical and knowledge based skills. They are taken in secondary schools and colleges.

Scottish Vocational Qualifications SVQs are based on the idea of job competence and are equivalent to NVQs in England (see above.)

Degrees and Diplomas. See above

5. Teachers

UK teachers are not civil servants, they are employed either by the local authority or by the school governing body, depending on the type of school. Initial teacher training generally involves a four-year Bachelor of Education degree course or a Bachelor's degree followed by a one-year post-graduate certificate in education (PGCE). This leads to "Qualified Teacher Status" in England and Wales, eligibility to teach in Northern Ireland, and a teaching qualification in Scotland

This section details the curriculum analysis work undertaken that was a necessary preliminary to the development of the new syllabuses. It includes the analysis of the United Kingdom Higher National Diploma, the Spanish and Galician BOE and the Catalan qualifications for Business, Computing, E-Commerce and Design. A national qualification from Portugal is not present because the Level 4 is currently under development. However Level 4 programmes researched and developed by Escola de Comércio de Lisboa as part of this project are included as source material separately in the Appendix.

APPENDIX TWO

ANALYSIS OF CURRENT COURSES

BUSINESS

There are no significant differences in module structure and in content between the courses taught in Catalunya, and the rest of the Spanish regions. The match analysis therefore follows a bi-modular approach covering the British and the Spanish systems. However, the structural and schematic comparison also shows the separation between the two Spanish systems and, as far as we are aware, this is the first time that such a comparison has been conducted.

Although the two systems bring about similar final outcomes they do so through markedly different teaching and structural approaches. This made it difficult to match the content of each unit.

For example, in the case of Spain-Galicia and Catalunya, the courses analysed only cover the diploma in Administration and Finance, which is structured as a single pathway. However, the analysis on the British courses covered more than one pathway, increasing the number of modules for comparison. For example, in the area of Business, whereas in the Spanish-Galician system there are 12 Modules and in the Catalan 14 Credits, in the British HND we had to consider 29 different modules divided between the 5 different possible pathways. For this reason, the same subject matter may be distributed across several modules in the HND, depending on the pathway, but concentrated into one module for Spain.

Additionally, in the Spanish and Catalan programme formal work experience in collaborating companies is included, while in the UK there is an extensive focus on personal management and organisational behaviour.

No value judgement has been made on the different methodologies employed in Spain and the UK as we conclude that both systems are oriented towards achieving fairly similar learning objectives in the students.

The comparison table that follows shows a general summary of our analysis of the different national systems. How each unit content matches, matches only partially, or does not match at all is explained, as necessary, in the notes following the chart.



LIST OF COURSE UNITS FOR CURRENT NATIONAL QUALIFICATIONS

CORE UNITS	COMPETENCE UNITS	
BTEC/BCOT(*) HNC-HND Business/Business & Finance/Business & Management/Business & Marketing/Business & Personnel	BOE-España/CEU Madrid/ IES Ribeira do Louro –Galicia CFGS Administracion y Finanza	DOG-Catalunya/Abat Oliba Barcelona CFGS Administracion y Finanza
UK 1: Marketing (*)	ES 1: Supply and Purchasing Management	CAT 1 Supply and Purchasing Management
UK 2: Managing Financial Resources (*)	ES 2: Financial Management	CAT 2 Financial Management
UK 3: Organisations and Behaviour (*)	ES 3: Human Resources	CAT 3 Human Resources
UK4: Organisations Competition and Environment (*)	ES 4: Accounting and Taxation	CAT. 4: Computerised Accounts
UK 5: Quantitative Techniques for Business (*)	ES 5: Business Management & Client Relations	CAT. 5: Advanced Accounting with Taxation
UK 6: Legal and Regulatory Framework (*)	ES 6 Public Administration	CAT. 6: Business Management & Client Relations
UK 7: Management Information Systems (*)	ES 7: Financial Products and Services + Insurance	CAT. 7: Public Administration
UK 8: Business Strategy (*)	ES 8: Auditing	CAT. 8: Financial Products and Services + Insurance
UK 9: Management Accounting (*)	ES 9: Computer Applications and keyboard operating	CAT. 9: Auditing
UK 10: Financial Systems and Auditing	ES 10 : Final Management Project	CAT. 10: Data Processing
UK 11: Financial Reporting (*)	ES 11: Career development	CAT. 11: Advanced omputer Applications
UK 12: Taxation	ES 12:Placement in work Centre	CAT. 12: Final Management Project
UK 13: Managing Activities	ES 13 Additional free time (School choice)	CAT. 13: Career development
UK 14: Managing People		CAT. 14: Placement in work Centre
UK 15: Managing Information		CAT 15: Additional free time (School choice)
UK 16: Managing Self		
UK 17: Marketing Intelligence		
UK 18: Advertising and Promotion (*)		
UK 19: Marketing Planning		
UK 20: Sales Planning and Operations		
UK 21: Human Resource Management (*)		
UK 22: Managing Human Resources Issues (*)		
UK 23: Human Resource Development		
UK 24: Employee Relations		
UK 25: Purchasing		
UK 26: Quality Management		
UK 27: Small Business Management		
UK 28: Environmental Management		
UK 29: European Business (*)		

LIST OF COURSE UNITS FOR CURRENT NATIONAL QUALIFICATIONS

United Kingdom	Spain – BOE	Catalunya
UK 1	ES 5	CAT 6
UK 2	ES 2	CAT 2
UK 3	No Match	No Match
UK4	ES 6	CAT 7
UK 5	ES 4	CAT 5 and CAT 10
UK 6	ES 6	CAT 7
UK 7	ES 9	CAT10 and CAT 11
UK 8	ES 10	CAT 12
UK 9	ES4	CAT 4 and CAT 5
UK 10	ES 7 and ES 8	CAT 8 and CAT 9
UK 11	ES2 and ES 4	CAT 2 and CAT 5
UK 12	ES 4	CAT 5
UK 13	ES 6 and ES 11	CAT 7 and CAT 12
UK 14	ES 11 and ES 12	CAT. 13 and CAT 14
UK 15	ES 12	CAT 14
UK 16	ES 10	CAT 12
UK 17	ES 5	CAT 6
UK 18	ES 5 and ES 7	CAT 6 and CAT 8
UK 19	ES 5 and ES 10	CAT 6 and CAT 12
UK 20	ES 5 and ES 10	CAT 6 and CAT 12
UK 21	ES 3	CAT 3
UK 22	ES 3	CAT 3
UK 23	ES 3	CAT 3
UK 24	ES 3 and ES 10 and ES 11 and ES 12	CAT 3 and CAT 12 and CAT 13 and CAT 14
UK 25	ES 1	CAT 1
UK 26	No Match	No Match
UK 27	ES 12	CAT 14
UK 28	No Match	No Match
UK 29	ES 6	CAT 6

COMMENTS:

UK 1: Marketing: This Unit corresponds partially to the BOE and Catalan Business Management and Client relations units and to the Final Management Project. In the Spanish units, there is no extensive description of marketing processes, only Principles and Foundations of Marketing are taught. In the Final Management Project, Spanish Students learn more in-depth definitions of marketing techniques and theories especially on companies and market promotion.

UK 3: Organisations and Behaviour: There is no real match in Administration and Finances in either the BOE or Catalunya for the contents of this unit. Nevertheless, the Spanish students may acquire the skills outlined in several other units (particularly ES 11 and ES 12 and CAT 13 and CAT 14). In fact, both the Placement in a Work Centre and the Career Development courses give an extensive knowledge of management and organisational approaches on an individual level.

UK 5: Quantitative Techniques for Business. In the BOE we find only a partial match of the contents included in this unit. The Catalan course has a better match and additional elements are taught in CAT 11 which include advanced application of statistical techniques.

UK 7: Management Information Systems. The Spanish Units match only on the contents of IT systems and applications, the theoretical aspects of MIS are not present.

UK 8: Business Strategy. We can only find a partial match for this unit in the Spanish system, in the Final Management Project unit (ES 10, CAT 12), concerning the implementation and practical accomplishment of strategic plans.

UK 11: Financial Reporting. No real match can be found in the Spanish courses for the contents of this Unit.

UK 13-14-15-16: Managing Activities, People, Information and Self. These Units belong to the Business and Management pathway, so they have very specific contents. Relevant elements in the Spanish courses can be found in several units which, together, assure a reasonable matching of the outcomes achieved by the British students.



UK 19-20: Marketing Planning, Sales Planning and Operations. These two Units belong to the Business and Marketing HND pathway and their contents are particularly focused on advanced marketing processes and techniques. Elements of these can be found in the Spanish and Catalan units indicated.

UK 21-22-23: Human Resource Management, Managing Human Resource Issues, Human Resource Development. These Units belong to the Business and Personnel option pathway and contain an extensive description of Human Resources procedures and techniques. In the BOE and in Catalunya, these contents are taught in the single Human Resources Unit (ES 3, CAT3).

UK 24: Employee Relations. This unit also belongs to the Business and Personnel option pathway. Human Resources issues find their equivalent in other units of the Spanish system, notably concerning legislation and labour relationships (ES 11, CAT 13), employment behaviour (ES 12, CAT 14), and negotiation processes (ES 10, CAT 14).

UK 26: Quality Management. There is no match for this unit in the Spanish courses.

UK 27: Small Business Management. The Spanish students can put into practice the contents of this unit during their work experience placement, where they will learn how to improve their management skills and how to achieve business objectives and plans.

UK 28: Environmental Management. There is no match for this unit in the Spanish courses.

Additional notes:

1. The Spanish courses last two years spread through a total of 2000 hours. The courses taught in the HND have an average duration of 60 hours per unit, which, once the different pathway and the option courses (16 Units) have been chosen, makes a total of about 960 hours. Although no value judgement can be made on the different methodologies used, we can state that, whereas the Spanish courses lack specific contents, they may well be compensated by the extra time available.

2. Free time available (about 170 hours) in each Spanish centre could be used to introduce specific content that is lacking into the Spanish courses,

3. The work placement programme present in the Spanish system is a valuable vocational experience for the students and can probably replace certain specific contents not taught at college.

4. The British students enjoy a more flexible use of time as allotted to the contents throughout the two compulsory years. In the Spanish system, the pattern of the class scheduling during the two years is much more rigid, students can not advance to second years' course without completing the mandatory course of the first year. All this could create difficulties in the event of student exchanges between Spanish and British centres, or vice versa. Difficulties could also be encountered where, for example, a certain unit is given in a Spanish centre in the first year and in another Spanish centre in the second year.

UNITED KINGDOM

The EDEXCEL Higher National Qualifications in Business (Level 4 UK)

Introduction

For the purpose of this study, special emphasis is given to the description of the HND programme, as this best corresponds to the equivalent level 4 Business courses taught in Spain (particularly the pathway of Business and Finance).

The study will describe the knowledge, understanding, skills and assessment requirements of the EDEXCEL BTEC Higher National programmes in Business, currently in use in the UK. The Higher National programmes in Business are provided and awarded by the EDEXCEL Foundation, which incorporates two awarding and assessment bodies: the BTEC, leading provider of applied and vocational qualification and London Examinations, one of the major GCSE and GCE examining boards in the UK. Higher National qualifications in Business can lead to the award of two different qualifications:

- The Higher National Diploma in Business (HND)
- The Higher National Certificate in Business (HNC)

Both the HNC and HND give a relevant NVQ level 4 qualification and normally last for two years.

The study programmes are divided into five functional pathways, according to the different units chosen by the student, and lead to the award of a BTEC Higher National Diploma or Certificate in one of the following:

- Business
- Business & Finance
- Business and Management
- Business and Marketing
- Business & Personnel

These qualifications have been developed to meet the needs of the major functions in business, hence the inclusion of the functional pathways (Finance, Marketing, Management, and Personnel).

Aims

The Higher National qualifications in Business are designed with the following aims:

- to provide an educational foundation for a range of administrative and management careers in Business
- to provide specialised studies directly relevant to individual vocations and professions in which students are working or intend to seek employment
- to enable students to make an immediate contribution in employment
- to provide flexibility, knowledge, skills and motivation as a basis for future studies and career development
- to develop students' ability in business through effective use and combination of the knowledge and skills gained in different parts of the programme
- to develop a range of skills and techniques, personal qualities and attitudes essential for successful performance in working life.

Professional recognition

The Higher National qualifications and especially the pathway qualifications have been developed with career progression and professional recognition in mind. It is essential that students gain the maximum benefit from their programme of study. Consequently, EDEXCEL have added value to the qualification by obtaining recognition from many National and International bodies. Universities in the UK also give credit to HNDs by allowing entry into the second or, exceptionally, third year of a degree course.

Entry requirements

It is the responsibility of the centre to recruit with integrity. Centres must therefore:

1. provide applicants with appropriate information

2. select in the light of applicants' previous qualifications and experience.

EDEXCEL BTEC Higher National programmes are intended primarily for those who are in, or plan to enter, employment and who have reached the minimum age of eighteen. The qualifications have been designed on the assumption that they are available, without artificial barriers to restrict access and progression, to everyone who can achieve the required standard. However students who enter with at least one of the following are likely to benefit more readily from the programme:

- BTEC National Certificate or Diploma in Business
- BTEC Advanced GNVQ
- BTEC National Certificate or Diploma of any other related title
- at least one GCE A level pass, with appropriate supporting passes at GCSE at Grades A,B or C
- for mature candidates, appropriate work experience.

For students already in employment or with relevant previous experience, EDEXCEL's introduction in 1990 of Accreditation of Prior Learning (APL) ensures that outcomes already achieved by an applicant, whether through experience or through other qualification, can be identified, authenticated and accredited against the qualification specification without the need for repetition.

No time limit is placed by EDEXCEL on the completion of an individual programme, up to the normal EDEXCEL registration period of five years (which is itself renewable). Students may, if they wish, take only parts of a qualification for separate accreditation and certification.

Programme design and structure

In order to achieve the programme aims, centres should devise a structured learning experience to deliver the qualification outcomes. Centres are encouraged to reflect changes in the business and professional environment in the content of units, while delivering the qualification outcomes. Programme design and delivery should reflect the balance of skills and knowledge needed to competently work in the business and professional environments.

The Higher National qualifications in Business:

- are normally designed to last for two years, although individual students programmes may vary from this depending on prior experience and learning (APEL)
- require a Diploma to comprise 16 units and a Certificate 10 units, each unit having a value of 1.0

- comprise core units which are compulsory: the Diploma has 8 core units, the Certificate 6 core units
- comprise option units some of which form specific functional pathways and are consequently compulsory for students seeking the qualification titles: Business and Finance, Business and Management, Business and Marketing, Business and Personnel.

Other option units are available for further development, as is the more general qualification titled Business. It is also possible to combine vocational areas of study: for example, a programme combining core and option units from Business and Travel and Tourism to produce an HND qualification in Business and Travel. For the Diploma, such combined programmes must use 10 units (including core units) from the main vocational area and 6 units from the other vocational area. All combination programmes must go through EDEXCEL's normal approval procedure and be submitted for individual approval.

Unit design

The Higher National qualifications consist of standard unit templates which include clearly defined outcomes and content, robust assessment criteria and clear grading criteria ensuring standards, credibility and rigour. The units have a notional level indicator of H1 or H2, indicating the relative intellectual demand, complexity and depth of study, and learner autonomy. In designing programmes of study to fulfil progression arrangements centres have flexibility in selecting appropriate combinations of H1 and H2 units for the option pathways.

All units are designed to recognise the importance of the development of skills through the integration of Common Skills.

Centre choice of units

Centres applying to offer Higher National qualifications may include their own choice of units in the option pathways. This flexibility is limited to a total of 4 units at the Diploma level and up to 2 units at the Certificate level.

Centre choice may be based on:

- appropriate units from other Higher National vocational areas
- proposals for units submitted to EDEXCEL to meet regional needs
- appropriate language units.

Centre choice of units must contribute to the coherence of the qualification and will be subject to approval.

Key to structure

The Higher National Diploma in Business comprises 8 core units plus 8 option units. The Higher National Certificate in Business comprises 6 core units plus 4 option units.

When choosing EDEXCEL BTEC option units, students:

- seeking the Business title may select options from across the functional pathways to maximum of three from each, as well as from the general option units
- following a functional pathway must achieve the specified pathway option units. Further option units may be selected from across the other functional pathways to a maximum three from each, as well as from the general optional units
- should be aware that the first option unit of each functional pathway (except Management) is considered to be a key unit of that pathway. It is recommended that the key unit be before, or alongside, the other functional pathway units. The key units are:
 - > Management Accounting
 - > Marketing Intelligence
 - > Human Resource Management.

Students achieving the Higher National Certificate/Diploma in Business and Management may progress immediately onto the BTEC Professional Development Diploma in Management Studies.

All programmes must include the development and assessment of Common Skills.

In addition to the EDEXCEL devised option units, centres may wish to seek approval for other options which offer additional specialisation, further breadth, and/or meet local needs. Centre-devised units have to be submitted to EDEXCEL as part of the approval system.

Unit structure

All units are defined in terms of 'guided learning hours'. This means the amount of time when a member of staff is present to give specific guidance towards the qualification or module being studied on a programme. This includes lectures, tutorials and supervised study in, for example, open learning and learning workshops. It does not include hours where supervision or assistance is of a general nature and is not specific to the nature of the students.

Each unit requires approximately 60 guided learning hours.

Each unit is a set of learning outcomes, with associated content, measures and guidance. To achieve the unit all outcomes must be met by the student. For this study each unit will be described in the following way:

- unit title
- unit level
- description of the overall purpose of the unit
- unit outcomes - what the student must achieve

Common Skills

Currently all Higher National qualifications are required to include Common Skills. These are transferable skills which play an essential role in developing personal effectiveness for adult and working life, and in the application of specific vocational skills. All EDEXCEL qualifications at Higher National level embrace the following skill areas as an essential part of the learning programme:

- Applying Numeracy
- Communicating
- Applying Technology
- Managing and Developing Self
- Working with and Relating to Others
- Managing Tasks and Solving Problems
- Applying Design and Creativity.

Centres may also assess and certificate students in QCA Key Skills units. Key skills units are available at levels 1 to 5 in six different areas:

- Application of Number
- Communication
- Information Technology
- Personal Skills: Improving Own Learning and Performance
- Personal Skills: Working with Others
- Problem Solving.

Assessment

The key characteristics of assessment should be validity, reliability and fitness for purpose. EDEXCEL encourages centres to use a variety of traditional and innovative assessment methods, including case studies, assignments, time-constrained assessments and work-based projects.

Description of the units

Note: Each EDEXCEL Unit will be given the code UK, followed by progressive numbers, useful for the comparison table on page

THE SIX HNC AND HND CORE UNITS ARE AS FOLLOWS:

Unit UK 1: Marketing

Unit level: H1

Description: The aim of this unit is to investigate the principles that underpin the marketing process and how they apply in business. It is a broad-based unit providing a general overview of marketing for all students and a foundation for further study in the specialist area of marketing.

Summary of outcomes

To achieve this unit a student must:

- Explain the marketing process
- Explain target marketing
- Analyse the components of the marketing mix
- Apply the marketing mix to different market segments.

Unit UK 2: Managing Financial Resources

Unit level: H1

Description: The unit is designed to give the student an understanding of the management of finance within a business organisation. Students will look at the sources of finance and learn how to interpret and use financial information for decision-making purposes. They will learn basic financial techniques used for making decisions in relation to costing and budgeting, pricing and investments.

Summary of outcomes

To achieve this unit a student must:

- Identify the sources of finance available to businesses
- Explain the use of finance as a resource within the business
- Analyse the financial performance of businesses
- Make financial decisions based on financial information available

Unit UK 3: Organisations and Behaviour

Unit level: H1

Description: This unit provides an introduction to the nature of organisations in relation to management practices. The unit examines the internal nature of organisations from both a theoretical and practical point of view. The unit develops an understanding of the behaviour of people within organisations and the significance of organisational design and characteristics. The unit aims to provide the basis for, and to underpin further study in, specialist areas of business.

Summary of outcomes

To achieve this unit a student must:

- Examine different approaches to management and theories of organisation
- Evaluate how organisational structure and culture contribute to business success
- Examine the relationship between motivation theories and management practices
- Identify those factors which influence the behaviour of individuals in organisations
- Demonstrate an ability to work with others based upon an understanding of groups and group dynamics.

Unit UK 4: Organisations Competition and Environment

Unit level: H1

Description: The aim of this unit is to encourage students to investigate issues concerning the interaction of organisations and the environment they face, in particular directing focus on the environment in a national and European context. The unit also equips students with an understanding of the context in which organizations function. Additionally, it provides for the development of a solid base of understanding of the parameters within which organizations act that can be built upon in further units.

Summary of outcomes

To achieve this unit a student must:

- Identify the objectives and purposes of organisations
- Investigate the key features of the local and national economy in which organisations operate
- Investigate the main external market factors which may influence the organisation
- Explore the significance of the European dimension for UK-based organisations.

Unit UK 5: Quantitative Techniques for Business

Unit level: H1

Description: This unit develops the students' ability to deal with numerical and quantitative issues found in business. The student will be able to use statistical, graphical and algebraic techniques to address business problems using appropriate IT software where relevant. The reliable evaluation of numerical results, with and without the use of IT, will enable effective decisions to be made.

Summary of outcomes

To achieve this unit a student must:

- Use statistical techniques to collect and analyse data
- Produce forecasts based on formalised procedures
- Apply quantitative techniques to business situations.

Unit UK 6: Legal and Regulatory Framework

Unit level: H1

Description: This unit provides an introduction to basic principles of law relating to business. It develops students' knowledge of general principles of contract and criminal law, and the more specific statutory provisions relating to consumer and employee protection. It also provides an introduction to business units - their formation, management and dissolution. The student is encouraged to analyse and evaluate legal provisions and to adopt a practical approach to problem solving.

Summary of outcomes

To achieve this unit a student must:

- Discuss the principles of law relating to the formation and discharge of commercial and customer contracts
- Identify key provisions contained in consumer protection legislation
- Explain the legal provisions concerned with the formation, management and dissolution of business units
- Explain key provisions relating to employment protection legislation.

THE HND ONLY CORE UNITS ARE AS FOLLOWS

Unit UK 7: Management Information Systems

Unit level: H2

Description: The aim of this unit is to introduce the student to the role and function of management information systems in business operations. It will develop the students' ability to identify sources of management information and how these can be used in the decision-making process via electronic and paper-based communication. It will require the students to develop practical applications ability and knowledge as well as the ability to recommend how MIS should be used in business.

Summary of outcomes

To achieve this unit a student must:

- Explain the purpose and scope of MIS
- Evaluate the use of MIS as a business management function
- Identify and assess differing IT systems applications to store, retrieve and analyse
- information within a MIS.

Unit UK 8: Business Strategy

Unit level: H2

Description. The aim of this unit is to develop students' ability to evaluate the strategy process and its implementation in organisations. This will involve an evaluation of the impacts of external operating environment and the need to adopt organisational strategies to ensure effective business performance.

Summary of outcomes

To achieve this unit a student must:

- Examine the process of strategic planning
- Analyse approaches to strategy formulation
- Examine approaches to strategy implementation.

THE OPTION UNITS (SHOWING THE FIVE PATHWAY QUALIFICATIONS)

1. Business

Any four option units (see rules of combination*)

2. Business & Finance*

Unit UK 9: Management Accounting

Unit level: H1

Description: In this unit students will learn about managing finance within the business environment. They will learn about the management of working capital in the business, budgetary control and costing techniques. They will apply some statistical techniques for the purpose of financial analysis.

Summary of outcomes

To achieve this unit a student must:

- Explain the concept and measurement of cost within business organisations
- Collect and analyse cost information for use within an organisation
- Prepare budgets and cash flow forecasts for an organisation
- Monitor and control costs and budgets within an organisation.

Unit UK 10: Financial Systems and Auditing

Unit level: H2

Description: This unit covers the structure of financial systems within an organisation and the auditing of those systems. Students will learn how both manual and computerised accounting systems operate and how they are controlled and safeguarded. They will be introduced to the concept, principles and techniques of auditing.

Summary of outcomes

To achieve this unit a student must:

1. Analyse the functioning of an organisation's financial systems
2. Evaluate the effectiveness of management control systems
3. Define the nature and purpose of internal and external audit
4. Use appropriate audit techniques in different audit situations.

Unit UK 11: Financial Reporting

Unit level: H2

Description: In this unit students will learn how to prepare financial statements for different types of business enterprise and how to make appropriate adjustments to those statements. They will learn the detailed legal and regulatory provisions relating to financial reporting and how to apply appropriate accounting principles. They will learn the basic principles of preparing group accounts. On completion of the unit, students will be able to prepare final accounts for a variety of business organisations.

Summary of outcomes

To achieve this unit a student must:

- Explain the legal and regulatory framework for financial reporting
- Prepare financial statements for a variety of different organisations
- Present financial reports in accepted formats for publication

Unit UK 12: Taxation

Unit level: H2

Description: In this unit students will learn about tax provisions for both individuals and limited companies. They will learn how to calculate taxable income and tax payable taking account of all types of income and relevant expenditure and any appropriate tax-free allowances. The unit covers income tax, corporation tax and capital gains tax for individuals and businesses.

Summary of outcomes

To achieve this unit a student must:

- Explain the duties and responsibilities of the tax practitioner and the UK tax environment
- Calculate personal tax liabilities for employed individuals
- Calculate tax liabilities for sole traders and partnerships
- Calculate corporation tax liabilities for companies
- Calculate capital gains tax payable for individuals and businesses.

3. BUSINESS & MANAGEMENT*

Unit UK 13: Managing Activities

Unit level: H2

Description: This unit focuses on the effective and efficient planning and management of work activities. It provides students with the knowledge and skills to design, implement and change operational systems to improve their effectiveness and efficiency.

Summary of outcomes

To achieve this unit a student must:

- Explain how processes and functions inter-relate in the organisational structure
- Plan work activities to meet the objectives of the organisation and the needs of customers
- Manage work activities to achieve organisational objectives
- Design and monitor appropriate systems to ensure quality of products and services

- Manage health and safety in the workplace
- Make improvements to the organisation's systems and activities.

Unit UK 14: Managing People

Unit level: H2

Description: This unit develops the skills and knowledge that are needed to manage people within an organisation. It recognises that the management of people operates within the internal framework of organisational values, culture, policies and practices and that externally it should meet the requirements of current legislation and ensure ethical and environmentally friendly behaviour.

Summary of outcomes

To achieve this unit a student must:

- Select personnel against specified requirements
- Analyse the development needs of teams and individuals
- Allocate work to teams and individuals agreeing objectives and work plans
- Evaluate performance of teams and individuals
- Contribute to the implementation of disciplinary and grievance procedures.

Unit UK 15: Managing Information

Unit level: H2

Description: This unit enables students to recognise the need for managers to be able to gather, analyse, record, store and disseminate information as part of the management function. The focus of the unit is not on information systems but on the processes. The unit develops the skills and techniques involved in managing information, and students will learn to manage information to inform decision-making.

Summary of outcomes

To achieve this unit a student must:

- Establish the type of information required to manage day-to-day and medium-term operations
- Use sources of information to inform and aid decision-making
- Gather information from different sources to meet information needs
- Analyse information to inform decision-making
- Record and store information to aid understanding and access
- Use dissemination channels to distribute information throughout the organisation.

Unit UK 16: Managing Self

Level: H2

Description: This unit is concerned with personal development and enables students to build on existing to enhance current performance and develop new skills for future personal and career development. The emphasis is on the needs of the individual but within the context of how the development of self-management corresponds with effective team management in meeting objectives.

Summary of outcomes

To achieve this unit a student must:

- Carry out a personal skills audit and self-appraisal
- Prepare and agree a personal development plan with the line manager
- Review and monitor progress in achieving learning objectives and personal targets, progress and achievement of personal development and learning targets and reset objectives.

4. BUSINESS & MARKETING*

Unit UK 17: Marketing Intelligence

Unit level: H1

Description: The aim of this unit is to enable students to learn about different types of information needed for planning and monitoring in a competitive environment. Students will examine and apply techniques used in marketing to identify sources of information, trends in customer demand and the wider competitive environment. This unit gives the student the opportunity to develop further skills, knowledge and understanding of the concepts of marketing research.

Summary of outcomes

To achieve this unit students must:

- Identify and evaluate models of buyer behaviour
- Identify and evaluate market research techniques
- Carry out a competitor analysis
- Identify and apply methods of establishing customer satisfaction levels.

Unit UK 18: Advertising and Promotion

Unit level: H2

Description: This unit is designed to provide students with an understanding of key areas of advertising and promotion and to develop student's ability to select and apply appropriate communications tools within a strategic and tactical framework. It is a broad-based unit covering theoretical concepts as well as current promotional practice. It provides the basis for career choices in this field as well as for further study for professional qualifications.

Summary of outcomes

To achieve this unit a student must:

- Analyse the communications environment
- Explain the role and objectives of advertising
- Explain the role and objectives of below-the-line techniques
- Prepare a promotion strategy.

Unit UK 19: Marketing Planning

Unit level: H2

Description: This unit will consolidate previous knowledge and understanding of marketing and enable students to select, analyse, apply, and evaluate marketing planning models and theories to marketing planning. Upon completion candidates should have the ability to evaluate an organisation's ability to develop and launch a new product, and present a credible marketing plan.

Summary of outcomes

To achieve this unit students must:

- Carry out marketing audits
- Prepare a marketing plan for a product or service
- Examine ethical issues in marketing.

Unit UK 20: Sales Planning and Operations

Unit level: H2

Description: The aim of this unit is to develop a critical awareness of sales planning and operations. The unit will evaluate the sales process in both domestic and international contexts and the various situations in which sales techniques are applied. It will consider the role of sales management in achieving sales, marketing and corporate objectives and enhancing the output of the sales function. This unit is designed to provide the basis for career choices in this field as well as for further study for professional qualifications.





Summary of outcomes

To achieve this unit a student must:

- Explain the role and objectives of field selling
- Assess the role of the sales manager in enhancing sales performance
- Evaluate techniques for controlling sales output
- Explain the implications of operating in different sales environments.

5. BUSINESS & PERSONNEL*

Unit UK 21: Human Resource Management

Unit level: H1

Description: This unit provides an introduction to the concepts and practices of Human Resource Management within the United Kingdom. The aim of the unit is to provide an understanding of the personnel function of management through the consideration of systems and frameworks, which create and sustain the employment relationship within the organisation.

Summary of outcomes

To achieve this unit a student must:

- Examine the traditional view of personnel management and the new approach of human resource management
- Evaluate the procedures and practices for obtaining suitable employees
- Establish the effectiveness of principles and procedures for monitoring and rewarding the employee
- Examine voluntary and involuntary forms of employee exit from the organisation.

Unit UK 22: Managing Human Resources Issues

Unit level: H2

Description: The aim of this unit is to build upon the knowledge and understanding developed in the human resource management units. A broader and wider perspective is undertaken in relation to the management of the employment relationship. Human resource management strategies and issues are considered comparative approach is also undertaken in relation to human resource practices in other countries.

Summary of outcomes

To achieve this unit a student must:

- Examine the differing perspectives of human resource management
- Examine ways of developing flexibility within the workplace

- Examine the need for equal opportunities within the workplace
- Discuss the need for welfare provision within organisations
- Investigate human resource practices in the United Kingdom and overseas.

Unit UK 23: Human Resource Development

Unit level: H2

Description: This unit will develop students' understanding of the nature and role of training and employee development and consider the United Kingdom training scene and systems in operation. It looks at different learning styles and how this relates to the delivery of effective training and development, within organisations.

Summary of outcomes

To achieve this unit a student must:

- Examine learning theory
- Examine the systematic approach to training
- Evaluate the range of different training methods
- Evaluate the range of government-led training initiatives.

Unit UK 24: Employee Relations

Unit level: H2

Description: The main aim of this unit is to provide a general introduction to industrial relations and develop a knowledge and understanding of the changes which have taken place over the years with respect to employee participation and employee relations in the UK. The unit considers the nature of industrial conflict and the resolution of collective disputes. The processes of collective bargaining and negotiation are also explored.

Summary of outcomes

To achieve this unit a student must:

- Explain the unitary and pluralistic frames of reference against a changing background
- Examine the nature of industrial conflict and the resolution of collective disputes
- Explore the processes of collective bargaining and negotiation
- Analyse the concept of employee participation
- Investigate the shift from industrial relations to employee relations.

GENERAL OPTION UNITS *

Unit UK 25: Purchasing

Unit level: H1

Description: The aim of this unit is to encourage students to explore the major principles, concepts and techniques which are inherent in the management of the purchasing function in modern, efficient organisations.

Summary of outcomes

To achieve this unit a student must:

- Explain how the purchasing function contributes to the achievement of an organisation's objectives
- Use appropriate information sources and criteria to evaluate and select suppliers
- Explain how an organisation ensures that the regular quantities and quality of goods and services are purchased
- Explain the role of the major national and transnational organisations which influence international purchasing.

Unit UK 26: Quality Management

Unit level: H1

Description: The unit is primarily designed to provide students with an understanding of the rationale which has underpinned the development of quality management, the principles which guide its prescriptions, the concepts which it employs and the consequences which it is intended to generate in both manufacturing and service organisations and in both the public and private sectors of the economy.

Summary of outcomes

To achieve this unit a student must:

- Discuss the development of quality management
- Evaluate the different approaches to quality management
- Examine quality management systems and procedures
- Evaluate the barriers to the implementation of quality management.

Unit UK 27: Small Business Management

Unit level: H1

Description: The unit is primarily designed for students who are interested in small business enterprises and looks at the development and expansion of such businesses. The unit will be particularly appropriate for HNC students who are involved in small business enterprises. The unit draws together many of the topics covered in other Higher National units and allows students to practise the business skills required in a small business.

Summary of outcomes

To achieve this unit a student must:

- Analyse performance of a small business enterprise
- Propose changes to improve management and business performance
- Revise business objectives and plans to incorporate proposed changes
- Implement changes in all areas of the business.

Unit UK 28: Environmental Management

Unit level: H2

Description: This aim of the unit is to provide sound understanding of how an organisation's commercial activities will impact on the environment, how these activities might be altered in order to minimise their impact on the environment and how this can be done in a manner that ensures the continued profitability of the organisation. Students will gain a knowledge the assumptions and approaches used in environmental management techniques, an appreciation and understanding of environmental values, including how these values can be changed, and how sustainable practice can promote the long-term interests of the organisation and the population as a whole. Development of the skills needed to innovate change, support action and empower others to create changes, and the use of a range of the tools and techniques employed in environmental management will be explored.

Summary of outcomes

To achieve this unit a student must:

- Explain the concept of sustainability
- Investigate how an organisation's activities impact on the environment
- Explain the need for environmental management
- Explain the need for waste management

Unit UK 29: European Business

Unit level: H2

Description: In this unit students will study how membership of the EU influences the economic policy of the UK government, trade between member states and trading opportunities for UK businesses in the EU and how those can be assessed.

Summary of outcomes

To achieve this unit a student must:

- Evaluate the effect of membership on UK economic policy
- Examine patterns of trade and investment between member states
- Discuss the implications for UK organisations of the enlargement of the EU
- Explain how UK organisations assess opportunities for selling in other EU states.

SPAIN

Administration and Finance –Higher Degree Vocational Training Cycle (Module III, FP3) Level 4 -Spain

Introduction

The Higher Degree Vocational Cycle in Administration and Management belongs to the Professional family of Administration. In this section, the general structure applied in Spain, under the regulations of the Official Bulletin of State (BOE- Boletín Oficial del Estado) issued by the Ministry of Education and Science (MEC – Ministerio de Educación y Ciencia) will be described.

Different regulations and modular structures may be applied in each Autonomous Community, as well as in each college, but the following outlines can reliably be taken as a model for the purpose of this study. However, the Catalan system will be treated in a separate section dedicated to the description of one of the project's member colleges, the "Abat Oliba" College in Barcelona. The general module structure is largely followed in the courses taught at the CEU Madrid and I.E.S. college of O Porriño (Galicia) and a special section is therefore not necessary.

Description of the course:

Title: Higher Technician in Administration and Finance

Level: Higher Degree Vocational Training Cycle

Duration: 2000 hours

Corresponding to two academic years (maximum 5 vocational three-month courses in the educational centre, plus training in companies or institutions).

The 2000 hours are normally divided as follows:

- Teaching of the vocational modules in the educational centre: 1650 hours.
- Optional courses up to each centre (e.g. English, Extra Computing...): 170 hours
- Working placement: 350 hours

Professional Profile:

The general requirements for professional qualification of a technician in this area are the ability to organize and carry out:

- administration and management of human resources
- economic-financial operation
- information and advice to clients or users

Such activities should be done both in a public or private sector setting according to the size and activity of the company or institution and also in accordance with fixed objectives, the internal norms established and the relevant laws.

Professional skills

The Administration and Finance Higher Degree Vocational Training Cycle is designed to enable students to gain the professional skills to:

- administer and to negotiate the provisioning of stocks, determining the minimum and best level of storage, developing inventories according to the established procedures of valuation for the company and as normally in use.
- carry out budgetary plans and to supervise the financial administration in the short and medium term by means of the analysis of collection and payment flows, the receiving of own and external financial resources and the study of viability of investment projects.
- execute documents and official print-outs according to commercial, labour and fiscal practices in current use, and to present them to the relevant bodies.
- carry out audit in line with double entry book-keeping corresponding to the economic-financial operations, to interpret and analyse the balances and accounting results according to the regular processes and administrative procedures and in accordance with current practice.
- develop and to present the annual accounts and report, within terms as demanded by standard practice.

- apply agreed processes and administrative procedures in the selection, employment and training of human resources and to organise and supervise the administration and management of working personnel according to standard practice.
- inform and to advise, at the client's requirements, on products and/or financial and insurance services, so that future relationships are strengthened and form a basis for productive development.
- process and carry out administrative management in an institution or official, local or autonomous body, applying public and other administrative procedures and the standard procedures of public sector bodies.
- obtain the necessary information about a company in order to develop audit reports, applying the processes and procedures as required by the auditor.
- use computer applications for general or specific purposes for the development of documents and routine reports on general management and administration.
- possess an overall, integrated vision of the process of administration concerning management of the different technical, organisational, economic and human aspects of the company.
- adapt to new labour situations generated as consequence of changes taking place in techniques, labour organisation and economic aspects related with the job.
- maintain effective communications in the development of their work and to co-ordinate their activity with other organisational areas.
- maintain productive relationships between members of the working team, taking responsibility for the accomplishment of assigned objectives. To respect others' work; to organise and direct team tasks and to co-operate whenever difficulties arise, with a tolerant attitude toward colleagues and subordinates' opinions.
- solve problems and to take decisions in the carrying out of their own and the subordinates' work, in the respect of norms and established plans, consulting with their superiors and adopting appropriate solutions whenever normal conditions of security are endangered.
- study and to propose new approaches or guideline actions for the improvement of the activity of their working unit, keeping informed on innovations, trends, technology and regulations relating to their working environment.

General aims of the course:

The Higher Degree Vocational Cycle in Administration and Management is designed to meet the following aims:

- analyse and evaluate overall functioning of companies, in the public sector as well as in the private, starting from the specific function of each activity area, their internal relationships and their external links.

- analyse the systems and means of information and documentation flow, define the most appropriate administrative organisation of each company or institution depending on their activity and characteristics, and define the methods, office teams and computer facilities.
- interpret and apply commercial, labour and fiscal standard procedures, understand the procedures and derived information of the administration and management of the public and private sectors publicly available.
- apply techniques of oral communication: information, assistance, advice, communication, transmission and/or solving of any consultation, problem or event derived from commercial activity or service and direct contacts with the public and/or user, either in companies or in public and private institutions.
- select and operate with computer teams and computer applications of administration in order to process information and to develop documentation deriving from the usual operations in the field of administration and management.
- determine and calculate costs of economic activity and attribute them to the different units, products or services of the company.
- appropriately develop, analyse and interpret the financial statements, apply accounting techniques and tax procedures, using for their presentation either computer files or conventional means.
- apply techniques of calculation to capitalisation and modernisation processes, and in corporate loans into financial administration.
- analyse the fiscal system in Spain, defining the main aspects of the different taxes that affect companies and executing the assets-liabilities correctly corresponding to tax obligations for companies.
- analyse the purchasing and supply process, receiving and control of goods, organise, administer and supervise the administration of stocks.
- analyse the process of marketing of products and/or services, organise, administer and supervise its management.
- apply technical management to the carrying out of projects, while defining the necessary initial steps, organise and carry out the corresponding activity.
- apply procedures of data protection and conservation using office teams and computers, to guarantee integrity, use and access.
- develop initiative, sense of responsibility, identity and the professional maturity that allow work quality to improve and motivate staff toward professional improvement.
- enhance the value of professional communication, as well as the formal procedures in labour relationships, either formally or informally, and their impact on the activity and image of the company or institution.
- interpret legal, financial and organisational regulations as required for administration, identifying the rights and the obligations deriving from the relationships in the work environment.

- select and critically evaluate for staff the different sources of information related to their profession, which will assist the development of their capacity of self-acknowledgement and facilitate the evolution and adaptation of their professional capacities according to the technological and organisational changes in the sector.

Entry Requirements

The minimum requirements to access a Higher Degree Vocational Cycle are normally decided by each individual centre. However, the following are the procedures that generally apply to student admission:

Via school/academic route

- Baccalaureate (LOGSE) or equivalent. - Equivalent for entry (Experimental Baccalaureate or COU).
- FP3 Experimental Vocational Module.
- FP2 title or equivalent
- Students who have already passed another Higher Vocational Training Cycle.

Via work background

Open to people over 20 with a minimum professional background experience even if not matching the above mentioned requirements. An exam is necessary except for students who have passed the University Access Exam for Over 25. This exam is divided into 2 parts: general and specialist, depending on the chosen cycle (e.g. Administración y Finanzas). Students able to prove a minimum 1 year's professional experience are exempt from taking the specialist part.

Programme structure

The study programme is divided into units of competence, which indicate the general professional outcome of the teaching modules. The units are as follows:

1. Administration and control of stock levels.
2. Administration and control of financial, budgetary and related aspects.
3. Administration and control of human resources.
4. Finalisation and analysis of the accounting and tax operations.
5. Finalisation and supervision of advice operations, negotiation, retrieval and sale of products and services.
6. Administration and control in the public sector.
7. Information and advice about products and financial and insurance services.
8. Implementation of administration of audit services.

Vocational teaching modules

As for the general scheme applied throughout Spanish centres, the differences between centres or the autonomous regulations are not very great. The teaching programme is divided into vocational modules as follows:

- 8 teaching modules, each corresponding and correlated to a competence unit.
- 2 additional cross modules.
- 1 module dedicated to work experience in an associated company or institution.
- 1 module dedicated to the student's career development
- Each school has also additional free time available to be used for a personalised programme of study. Such available free time is normally used for the teaching of foreign languages and extra computing courses.

Description of modules

Note: The code ES followed by progressive numbers will be given to each Unit. This method is adopted to assist the comparison table on page.

TEACHING MODULES CORRESPONDENT AND CORRELATED TO A COMPETENCE UNIT.

Module ES 1: Supply and Purchasing Management

Module associated to the Unit of Competence number: 1
Approximate duration: 75 hours

Basic contents

- Processes and policies in purchasing
- Warehouse administration
- Treatment of commercial information and documentation
- Evaluation of supply bids
- Administration of documents and records of warehouses
- Inventories control process
- Evaluation of storage costs
- Evaluation of stocks
- Verification and sorting of purchase and supply documentation
- Computer treatment of warehouse data
- Writing of letters and commercial reports

Module ES 2: Financial Management

Module associated to the Unit of Competence number: 2
Approximate duration 160 hours

Basic contents

- Financial System
- Procedures of financial and commercial calculations
- Financing processes
- Management and administration of the budget
- Financial operation calculations
- Development and progression of budgets
- Official declarations
- Administration of payments
- Administration of portfolio of assets
- Document collection and payment processes
- Basic means of international payment
- Selecting investments
- Computer methods of financial calculation

Module ES 3: Human Resources

Module associated to the Unit of Competence number: 3
Approximate duration: 130 hours

Basic contents

- Labour Legislation
- Human Resources
- Training analysis
- Recruitment
- Salaries
- Planning and training procedures
- Treatment of legal information
- Organisation of personal working profile
- Personnel selection
- Processing of recruitment documents
- Quantification of salaries and Social Security rates
- Administration of personal documentation for public bodies
- Planning of training activities
- Production of reports and/or official releases

Module ES 4: Accounting and Taxation

Module associated to the Unit of Competence number: 4
Approximate duration: 190 hours

Basic contents

- Accounting processes
- Commercial documentation and accountancy
- General accounting planning
- Economic and financial analysis of the annual accounts
- Tax Administration
- Computer Applications

Module ES 5: Business Management & Client Relations

Module associated to the Unit of Competence number: 5
Approximate duration: 90 hours

Basic contents

- Communication, client care and negotiation techniques
- Sales department organisation
- Principles and foundations of marketing
- Sales processes
- Technical and administrative processes of commercial administrations and client-care services
- Client information research
- Information and client care
- Processes of sale and purchase negotiation
- Supervision and administration of human resources
- Information service organisation
- Writing sales literature and letters

Module ES 6: Public Administration

Module associated to the Unit of Competence number: 6
Approximate duration: 110 hours

Basic contents

- Administrative organisation
- Administrative procedures
- Documentation and official returns
- Economic and budgetary management returns
- Problem, file and retrieval management





- Transcription of resolutions and juridical and administrative acts
- Verification of administrative processes
- Accounting processes in the public administration
- Personal or telephone attention to the public
- Written communications and records

Module ES 7: Financial products and services + Insurance

Module associated to the Unit of Competence number: 7
Approximate duration: 110 hours

Basic contents

- Financial and insurance sectors
- Financial Products and services
- Passive Operations of financial institutions
- Active Operations of financial institutions
- General Services of financial institutions
- Bank Services in relationship to government regulation
- Insurance products and services
- Information processes re financial services
- Purchase of financial and/or insurance services and products
- Disposal of financial products
- Liquidation of insurance products
- Economic and financial analysis of government assets

Module ES 8: Auditing

Module associated to the Unit of Competence number: 8
Approximate duration: 90 hours

Basic contents

- General Auditing
- Auditing processes
- Representation of flow and auditing process charts
- Pre-analysis of the auditing process
- Formalisation of documents and working papers
- Verification of internal control processes
- Auditing of an area or group of accounts
- Auditing of debtor and creditor accounts

CROSS MODULES

Module ES 9: Computer Applications and keyboard operations

Approximate duration: 255 hours

Basic contents

- Basic Computer science
- Operational Systems
- Local and teleprocessing Networks
- Word Processors
- Spreadsheets
- Databases
- Graphic and editing applications
- Integrated Packages
- Keyboard operations in computers and electrical/electronic machines

Module ES 10: Final Management Project

Approximate duration: 195 hours

Basic contents

- Market and company
- Definition of company
- Development of economic and financial activities
- Management and Organisation
- Study of economic factors re markets and distribution channels
- Research into primary and secondary sources of information
- Product, service or market promotion
- Purchasing management
- Project Definition
- Project Rating
- Project Development

CAREER DEVELOPMENT MODULE

Module ES 11: Career development

Approximate duration: 65 hours

Basic contents

- Occupational Health
- Legislation and labour relationships
- Orientation and social and labour integration
- Principles of economics
- Company Economics and organisation
- Analysis of risk in working environments
- First aid Application
- Statutory consultation processes- work force
- Labour integration
- Macroeconomic and financial data analysis

WORK PLACEMENT MODULE

Module ES 12 Placement in work centre

Approximate duration: 380 hours

Basic contents

- Processing information in administration and management
- Accounting and Tax operations
- Client-care and computer techniques
- Understanding hierarchies and procedures inside the company: Working Team flowcharts

CATALUNYA

Administration and Finance – Higher Degree Vocational Training Cycle (Module III, FP3) – Level 4 Catalunya

Introduction

In this section, the general framework applied in Catalunya, under the regulations as published in The Official News Bulletin of the Generalitat de Catalunya (Catalan Government) will be described.

The Catalan system is based on a system of Credits instead of Modules. However, the various units which make up the programmes of Administration and Finance, taught within the BOE structure and the system of the Catalan credits, are not significantly different and in fact are very similar in content and development.

When analysing the differences, we note that the Catalan system has a total of 14 Credits, while the Madrid BOE is based on 12 Modules. However, while there are differences in the approximate hours of teaching for each Module/Credit, both programmes require a total of 2000 hours teaching.

Description of credit units

Note: The code CAT followed by progressive numbers will be given to each Credit. This is adopted to assist the comparison table on page .

Credit CAT 1: Supply and Purchasing Management

Module associated to the Unit of Competence number: 1

Approximate duration: 120 hours

Basic contents

- Processes and policies in purchasing
- Warehouse administration
- Processing commercial information and documentation
- Evaluation of supplier proposals
- Administration of documents and stock records
- Inventories control
- Evaluation of stock costs
- Evaluation of stocks
- Verification and ordering of purchase and supply documentation
- Computer treatment of warehouse data
- Writing letters and commercial reports

Credit CAT 2: Financial Management

Module associated to the Unit of Competence number: 2

Approximate duration 150 hours

Basic contents

- Financial System
- Procedures in financial and commercial calculations
- Financial processes
- Management and administration of funds
- Financial operations calculations
- Budget development process and monitoring
- Fund monitoring and control
- Administration of payments
- Administration of assets
- Document collection and payment processes
- Basic means of international payment



- Selecting investments
- Computer applications in financial calculations

Credit CAT 3: Human Resources

Module associated to the Unit of Competence number: 3
Approximate duration: 120 hours

Basic contents

- Labour Legislation
- The department of human resources
- Human resources selection
- Recruitment
- Salaries
- Planning and training procedures
- Treatment of legal information
- Organisation of personal work profile
- Personnel selection
- Processing of recruitment documents
- Quantification of salaries and Social Security rates
- Administration of personal documentation for public bodies
- Planning of training activities
- Production of reports and/or official releases

Credit CAT 4: Computerised Accounts

Approximate duration: 180 hours

Basic contents

- Accounting processes
- Commercial documentation and accountancy
- General accounting planning
- Economic and financial Analysis of annual accounts
- Tax Administration
- Computer Applications
- Registry of inventories
- Analysis of groups of accounts
- Compilation of annual accounts
- Quarterly VAT Returns
- Verification of accounting documents

- Computer application of accounting processes
- Creation of forms

Credit CAT. 5: Advanced accounting with taxation

Approximate duration: 150 hours

Basic contents

- Economic and financial Analysis of annual accounts
- Analytical Accounting
- Tax Administration
- Taxation on Private Salaries (IRPF)
- Taxation on companies
- VAT
- Record keeping
- Economic and financial Analysis
- Calculation of the deadlock
- Calculation of costs
- Tax Declaration Processes and settlement
- Computer Treatment of costs, ratios and other numerical data

Credit CAT 6: Business Management & Client Relations

Approximate duration: 90 hours

Basic contents

- Administrative organisation
- Administrative procedures
- Principles and foundations of marketing
- Documentation and returns to public bodies
- Economic and budgetary management to the public Administration
- Problem, file and retrieval management
- Recording of minutes and official documents
- Verification of administrative processes
- Accounting processes in public administration
- Face to face and telephone communications with the public
- Written communications and records

Credit CAT 7: Public Administration

Approximate duration: 90 hours

Basic contents

- Administrative organisation
- Administrative procedures
- Documentation and returns to the public bodies
- Economic and budgetary management to the public Administration
- Problem, file and retrieval management
- Recording of minutes and official documents
- Verification of administrative processes
- Accounting processes in public administration
- Face to face and telephone communications with the public
- Written communications and records

Credit CAT 8: Financial products and services + Insurance

Approximate duration: 90 hours

Basic contents

- Financial and insurance sectors
- Financial Products and services
- Passive Operations of financial institutions
- Active Operations of financial institutions
- General Services of financial institutions
- Bank Services in relationship to government regulations
- Insurance products and services
- Information processes re financial services
- Purchase of financial and/or insurance services and products
- Disposal of financial products
- Disposal of insurance products
- Economic and financial analysis of government assets

Credit CAT 9: Auditing

Approximate duration: 70 hours

Basic contents

- General Auditing
- Auditing processes
- Representation of flow and auditing process charts
- Pre-Analysis of the auditing process
- Formalisation of documents and working papers

- Verification of internal control processes
- Auditing of an area or group of accounts
- Auditing of debtor and creditor accounts

Credit CAT 10: Data Processing

Approximate duration: 150 hours

Basic contents

- Basic Computer science
- Operational Systems
- Local and teleprocessing Networks
- Word Processors
- Spreadsheets
- Databases
- Installation of computer programmes
- Organisation of the Computer system
- Desk-top publishing Applications
- Integrated Packages
- Keyboard operations in computers and electrical and electronic machines
- Data processing
- Management of computer elements

Credit CAT 11: Advanced computer applications

Approximate duration: 150 hours

General Contents

- Databases
- Desk-top publishing
- Word Processor, advanced use
- Spreadsheets, advanced use
- Database design
- Spreadsheets design
- Interface between applications and documents
- Generating graphics





Credit CAT 12: Final Management Project

Approximate duration: 120 hours

Basic contents

- Market and company
- Definition of company
- Development of economic and financial activities
- Management and Organisation
- Study of the economic factors operating on markets and distribution channels
- Research of primary and secondary source information
- Products, service or market Promotion
- Purchasing procedures
- Project Definition
- Project Rating
- Project Development

CAREER DEVELOPMENT CREDIT

Credit CAT 13: Career development

Approximate duration: 65 hours

Basic contents

- Occupational Health
- Legal aspects of Personnel
- Orientation and social and labour integration
- Principles of economics
- Company Economics and organisation
- Analysis of risk in working environments
- First aids training
- Consultations procedures with the work-force
- Labour integration
- Macroeconomic and financial data Analysis

WORK PLACEMENT CREDIT

Credit CAT 14 Placement in work centre

Approximate duration: 380 hours

Basic contents

- Processing information in administration and management
- Accounting and tax Operations
- Client-care and computer techniques
- Understanding hierarchies and procedures within the company: Work-Team flowcharts

COMPUTING

The following analysis of computing programmes preceded the development of the new syllabus for Computing. The qualifications examined were the Técnico Superior (Senior Technician) en Administración de Sistemas Informáticos (ASI) (Data Management), Técnico Superior (Senior Technician) en Desarrollo de Aplicaciones Informáticas (DAI) (Software Development), and Higher National Diploma in Computing (HND Computer Studies).

As far as we are aware, this is the first time that such a comparative exercise has been undertaken in Spain for the Spanish qualifications, let alone the UK Higher National Diploma.

Current Spanish and UK qualifications are examined here because the Portuguese government has only just approved the introduction of its own national Level 4 vocational qualifications. The participation of Portuguese colleagues in this work has therefore provided valuable development input and accumulated considerable information for the Departamento do Ensino Secundário, Lisboa.

The programmes are analysed as they are delivered in the centres of Barcelona, Madrid and Sevilla, as well as in Basingstoke College of Technology (BCOT), UK. In Sevilla, ASI is offered, in Madrid DAI is offered, but, in Barcelona both ASI and DAI are available to students. In BCOT, HND Computer Studies is offered.

A working group of colleagues, who are specialists in Computing, from Spain, Portugal and the UK was formed in Sevilla to conduct the analysis. Difficulties of language in the original documents (written in English, in Spanish and in Catalan) forced project staff to spend a great deal of time translating all those technical terms not readily understood by the members of the working group but for which accuracy is vital. There is a small possibility of misinterpretation of some expressions for which we apologise in advance.

Having completed the comparative analysis, meetings between the Co-ordinator and partners then took place to draft the final document in Spanish.

The final task was to translate this text into English.

Summary of significant similarities and differences in Computing syllabuses

Spain

One finding of this work is the almost complete match of the Core units in the three Spanish centres. This is in spite of differences in the regulations upon which they are based. For instance in the case of Barcelona, flexibility is devolved to the Centre to update contents of the core units and adjust them to local business needs. In Madrid and Sevilla, though no such flexibility exists in the regulations, in practice, because of operational considerations, something very similar becomes possible.

Without entering into value judgements concerning the underpinning objectives, we may conclude that both the Spanish and Catalan systems are oriented towards helping the students achieve fairly similar personal learning objectives (outcomes).

United Kingdom

In England, another difference we have identified is the greater flexibility regarding time allotted to course content through the length of the two mandatory years. In Spain, the physical time-tabling of the two years is more rigid and the regulation framework does not allow the student to proceed to the second year, if certain mandatory outcomes for first year have not been met. All this could possibly create difficulties in both directions in the event of student exchanges between BCOT and the Spanish centres. Equally, a certain unit may be taught in the first year at one Spanish centre but in the second year at another.

Such differences may force us to determine and define which units a student may have already acquired and which are still to be acquired, in order to adapt time and unit-cover requirements to each course. In such cases, the best procedure may be to co-validate studies between centres in so that the same outcomes are properly obtained. We believe that anomalies are avoidable via an open system of co-validation.

STATEMENT OF CURRENT COURSE UNITS AND PROGRAMME DESIGNS IN COMPUTING

Administration of Computing Systems (ASI)	Administration of Computing Systems (ASI)	Higher National Diploma in Computer Studies
<p>SEVILLA/MADRID FIRST COURSE</p> <p>1.1 End user and multi-user computing systems (256 hrs.) Artificial intelligence. Computing systems. Hardware: installation and maintenance. Concepts and types of operating systems. MS-DOS, UNIS and WINDOWS. Operating system administration.</p> <p>1.2 Local Area Networks (288 hrs.) Network concepts. Architecture and topology. LAN operating system. Local Area network operating systems NOVELL-NETWARE and WINDOWS NT. Local Area network administration.</p> <p>1.3 Basic programming concepts (256 hrs.) Program concepts. Data structures. Structured and modular programming. C language. Advanced C Language.</p> <p>1.4 Relationships in the work-place (64 hrs.)</p> <p>1.5 Training and job orientation (64 hrs.)</p>	<p>BARCELONA FIRST COURSE</p> <p>2.1 End user and multi-user computing systems (210 hrs.) Artificial intelligence and computing systems. Hardware. Operating system. Use of systems. Specific end user and multi-user operating systems. Operating systems administration. Administration of specific end user and multi-user operating systems.</p> <p>2.2 Management of local area networks (240 hrs.) Telematics. LAN Architecture. LAN operating systems. Use of specific Local Area network operating systems. Administration of Local Area network operating systems. Data transportation services. Administration of specific network operating systems.</p> <p>2.3 Basic programming concepts (240 hrs.) Programming. Data structures. Structured programming. Modular programming. Introduction to recursive programming. C Language. C Language extended to file management.</p> <p>2.4 Relationships in the work-place (60 hrs.)</p> <p>2.5 Training and job orientation (60 hrs.)</p>	<p>BCOT FIRST and SECOND COURSES</p> <p>5.1 Computer Platforms Computer systems: processor, backing and storage, peripherals, computer selection. Operating Systems: overview of functions, computer operations, network administration. Upgrading of systems. Network installation: network resources, external links, network planning, user-support planning, security.</p> <p>5.2 Systems Analysis Lifecycle models: systems lifecycle, evaluation of models. System investigation: fact-finding techniques, fact-recording methods and standards. Functional and data modelling: functional modelling, data modelling</p> <p>5.3 Software Constructs and Tools Problem-solving theory, applications and techniques: problem-solving applications, overview of problem-solving theory and techniques, testing and documenting the solution. Business models: model definition, spreadsheet features, design and implementation of spreadsheet-based models. Programming methodology: storage, control structures, programming language syntax, program design, programming standards and practice.</p> <p>5.4 Computing Solutions Information and contemporary applications: information and data, contemporary applications. Information processing: tools, information Processing. Information systems within an organisation: measures, use of measures</p> <p>5.5 Computer Implementation Project Plan an appropriate project: project.selection, project specification, project plan Develop the project: design/structure, development, documentation.</p>

SECOND YEAR

1.6 Development of functions in the computing system (198 hrs.)

Systems programming techniques.
Development of computer project techniques.
Methodology of design and systems development

1.7 Systems of database management (SGBD) (220 hrs.)

Concepts and types of databases.
Entity-relationship model.
Relational model.
Normalization.
SQL Language.
SGBD, Access, Informix, Oracle
Distributed databases.
Database administration.

1.8 Implementation of computing applications management (242 hrs.)

The company and its environment.
Company computing systems, types.
Specific purpose and general purpose computing applications.
Function of applications to senior management requirements
Documentation and formation of end users.

1.9 Integrated work (95 hrs.)

1.10 Work-place training (285 hrs.)

SECOND YEAR

2.6 Development of functions in the computing system (180 hrs.)

Systems programming techniques.
Development of projects on operating systems.

2.7 Systems of database management (SGBD) (190 hrs)

SGBD
Entity-relationship model (CHEN)
Relational model
SQL data language definition
SQL data language manipulation
Normalisation
Distributed databases
Administrator for a relational SGBD

2.8 Implementation of computing applications management (210 hrs)

The company and its environment
Computerisation of company management
Computer applications for general purposes
Computer applications for specific purposes
Features of management computing applications
User skills.

2.9 Synthesis (90 hrs.)

2.10 Work-place training (350 hrs.)

Verify the project: plan, verification techniques, implementation.
Evaluate the project: demonstration, audience, documentation.

5.6 Quality Management Principles

System analysis and design tools:
project management, systems maintenance.
Quality assurance: quality assurance factors, quality assurance tools.
Professional standards: legal requirements, professional requirements.

5.7 Communication Technology

Performance of communication systems:
performance factors, communication technologies, human factors.
Impact of communications technology: business factors, communication factors.
Cost and security: development costs, security costs, security mechanisms

5.8 Advanced Computing Project

Plan an appropriate project: project selection, project specification, project plan.
Develop the project: design, development, documentation.
Verify the project: verification plan, verification techniques, verification implementation.
Project evaluation: demonstration, audience, documentation, future development.

5.9 Networking

Benefits of networks: network principles and applications definition of a network, network use.
Design/evaluation of networks: network architecture concepts, network design
Network software: user factors, login scripts, hardware and software factors. Network Management: management responsibilities, control resource usage



LOCAL VARIATIONS

1.11 Computing in Andalusia (32 hrs. in First Year)

Total: 2000 hours

LOCAL VARIATIONS

2.11 English Language in first and second years

2.12 Legal framework to adjust programs (170 hrs.)

Total: 2000 hours

5.10 Data Analysis and Database Design

Databases: implement a design, data manipulation, query and reporting, application links.
Small Databases: relational model, data analysis, top-down analysis, bottom-up analysis, data definition.

5.11 Introduction to Programming

Structured programming: storage, control structures, programming language syntax, program design, programming standards and practice.
Modularization: use of functions/procedures, scope of variables, parameters.
Test schedules: error types, test documentation, test data and schedules, Error detection techniques.

5.12 Computer Architecture

Operating systems: overview of functions, computer operations, network administration.
Data representation, simple logic and fetch-execute cycle of a model: data representation, logic and fetch-execute cycle.
Low-level programs: machine code, assembly code, critical appreciation of machine performance.

5.13 Multi-media and Internet Development

Web pages/frames: environment, page element, survey, design, development.
Multi-media application: current applications, design/plan, elements, development, documentation.
Multi-media/Internet technique: techniques survey/selection, design, development

5.14 Object -oriented Development

Object-oriented concepts: general trends in software engineering, characteristics of object-oriented systems, methodologies and methods.
Object-oriented analysis and design: modelling techniques, advanced concepts, additional items, system design, object design, interface design.
Object-oriented test plan: testing.
Object-oriented applications: range, relative advantages.

BARCELONA FIRST COURSE**3.1 Operating Systems (150 hrs.)**

Artificial Intelligence and Computing Systems
 Operating Systems
 Operating Systems Control Programs
 Operating Systems Processing Programs
 End Users and Multi-users Operating Systems
 Windows '98, Windows NT

3.2 Database Analysis and Design (60 hrs.)

Databases
 Structures
 Entity-Relationship Model

3.3 Analysis and Design of Computing Applications (190 hrs.)

Artificial Intelligence Systems
 Methodologies of Development
 Computer-assisted Analysis and Design

3.4 Structured and Modular Programming (180 hrs.)

Programming
 Data Structure
 Structured Programming
 Modular Programming

3.5 Fourth Generation Environment and CASE Tools (120 hrs.)

Fourth Generation Development Tools
 CASE Tools

MADRID FIRST COURSE**4.1 Multi-user and Networking Computing Systems (260 hrs.)**

Introduction to Computing Systems and Operating Systems
 Multi-user Operating Systems:UNIX
 Networking Computing Systems
 Networking Operating Systems:NOVELL-NETWARE
 Interconnection of Systems
 Legal Requirements for Computing

4.2 Analysis and Detailed Design of Computing Applications in Management (320 hrs.)

Company Computing Systems and Communication
 The Computing Plan
 Computing Applications for Company Management
 Methodologies for the Development of Computing Applications
 Consulting Tools for the Development of Applications
 Structured System Analysis
 The Data Dictionary: SGBD
 Systems Design
 Computer-assisted Analysis and Design:CASE
 Project Management and Trends
 Tools for Management Projects
 Assessment of Projects
 Software Quality
 Techniques and Strategies of Software Testing
 Software Maintenance

4.3 Structured Language Programming (380 hrs.)

Basic Programming Concepts
 Programming Structure
 Data Structure
 Methodology of Programming
 Tools for Developing and Testing Programs
 Programming Documents

BCOT FIRST and SECOND COURSES**5.1 Computer platforms**

Computer systems: processor, backing and storage, peripherals, computer selection.
 Operating Systems: overview of functions, computer operations, network administration.
 Upgrading opportunities.
 Network installation: network resources, external links, network planning, user-support planning, security.

5.2 Systems Analysis

Lifecycle models: systems lifecycle, evaluation of models.
 Systems investigation: fact-finding techniques, fact-recording methods and standards.
 Functional and data modelling: functional modelling, data modelling

5.3 Software Constructs and Tools

Problem-solving theory, applications and techniques: problem-solving applications, overview of problem-solving theory and techniques, testing and documenting the solution.
 Business models: model definition, spreadsheet features, design and implementation of spreadsheet-based models.
 Programming methodology: storage, control structures, programming language syntax, program design, programming standards and practice.

5.4 Computing Solutions

Information and contemporary applications: information and data, contemporary applications.
 Information processing: tools, information processing.
 Information systems within an organization: measures, use of measures.

5.5 Computer Implementation Project

Plan an appropriate project: selection, specification, plan.
 Develop the project: design/structure, development, documentation.



SECOND YEAR

3.6 Local Area Networking (180 hrs.)

Telematics.
LAN Architecture.
LAN Operating System.
Microsoft networks.
Novell networks

3.7 Advanced Programming (150 hrs.)

Programming and structure of dynamic data.
Introduction to recursive programming.
Object-oriented programming.
Objects.
Implementation of the properties of object-oriented programming (POO).
Management system of object-oriented database (SGBDOO).

3.8 Systems for management of relational databases (SGBDR) (120 hrs.)

Relational model.
SQL language.
Normalization.
ORACLE/DEVELOPER.
Engineering of computing systems. DESIGNER 2000

3.9 Design and implementation of presentation services in graphic backgrounds (120 hrs.)

Interface design.
Graphic user interfacing (GUI).
Multi-media environments

3.10 Relationships in the work place (60 hrs.)

3.11 Training and work orientation (60 hrs.)

3.12 Training in the work-place (350 hrs.)

3.13 Synthesis (90 hrs.)

SECOND YEAR

4.4 Fourth Generation and CASE Tools (310 hrs.)

Database system management (SGBD)
Relational model: Statics.
Relational model: Dynamics.
SQL Language.
Normalization theory.
Fourth generation development tools.
The process of database creation.
Conceptual design.
Logical design.
Basic concepts of CASE technology.
Techniques of applications development.
Methodology of applications technology.
Repositories and dictionaries of information resources.
CASE tools.
Development of applications in the client/server background

4.5 Design and implementation of presentation services in graphic backgrounds (220 hrs.)

Man-machine interfacing.
Interfacing design.
Interfacing design criteria.
Dialogue framework.
Graphic user interfacing (GUI)
Event programming.
Programming under graphic interfacing structure.
Graphic environments.
POO in graphic environments.
Use of specific computing applications.
Multi-media environments.
Applications design

4.6 Relationships in the work place (65 hrs.)

4.7 Training and work orientation (65 hrs.)

4.8 Training in the work-place (380 hrs.)

Verify the project: plan, verification techniques, implementation.

Evaluate the project: demonstration, audience, documentation.

5.6 Quality Management Principles

System analysis and design tools:
project management, systems maintenance.
Quality assurance: quality assurance factors, quality assurance tools.
Professional standards: legal requirements, professional requirements.

5.7 Communication Technology

Performance of communication systems:
performance factors, communication technologies, human factors.
Impact of communications technology: business factors, communication factors.
Cost and security: development costs, security costs, security mechanisms

5.8 Advanced Computing Project

Plan an appropriate project: selection, specification, plan.
Develop the project: design, development, documentation.
Verify the project: verification plan, verification techniques, verification implementation.
Evaluate the project: demonstration, audience, documentation, future development.

5.9 Networking

Benefit of networks: network principles and applications definition of a network, network use.
Design/evaluation of networks: network architecture concepts, network design
Network software: user factors, login scripts, hardware and software factors.
Network Management: management responsibilities, control resource usage.

LOCAL VARIATIONS

3.15 English Language in first and second years

Legal framework to adjust programs (170 hrs.)

Total 2000 hours

LOCAL VARIATIONS

Total 2000 hours

5.10 Data Analysis and Database Design

Databases: implement a design, data manipulation, query and reporting, application links.

Small Databases: relational model, data analysis, top-down analysis, bottom-up analysis, data definition.

5.11 Introduction to Programming

Structured programming: storage, control structures, programming language syntax, program design, programming standards and practice.

Modularisation: use of functions/procedures, scope of variables, parameters.

Test schedules: error types, test documentation, test data and schedules, error detection techniques

5.12 Computer Architecture

Operating systems: overview of functions, computer operations, network administration.

Data representation, simple logic and fetch-execute cycle of a model: data representation, logic and fetch-execute cycle.

Low-level programs: machine code, assembly code, critical appreciation of machine performance.

5.13 Multi-media and Internet Development

Web pages/frames: environment, page elements, survey, design, development.

Multi-media applications: current applications, design/plan, elements, development, documentation.

Multi-media/Internet technique: techniques survey/selection, design, development

5.14 Object-oriented Development

Object-oriented concepts: general trends in software engineering, characteristics of object-oriented systems, methodologies and methods.

Object-oriented analysis and design: modelling techniques, advanced concepts, additional items, system design, object design, interface design.

Object-oriented test plan: testing.

Object-oriented applications: range, relative advantages



COMPARISON OF COURSE UNITS

Analysis shows that the core units of the ASI courses in Barcelona and Sevilla do not contain significant differences. They appear to be very similar in content and development over the two years and we estimate that both centres could assimilate any existing differences.

Equally, the core units of the DAI courses in Madrid and Barcelona are not significantly different. Similar contents are however in different units, just as some aspects of content are not given in the same time sequence over the two years. We estimate that both centres could assimilate the present differences.

The tabulation used will serve as a key for the comparative tables that follow. These tables list the units taught in HND Computer Studies and those, which are studied for ASI or DAI. Next, the units taught in ASI and DAI are detailed for comparison with the HND Computer Studies units.

These tables could serve as a basis for the co-validation of various course contents, although we should point out that no value judgements have been or should be made regarding the in-depth treatment given to the contents.

HND COMPUTER STUDIES UNITS TAUGHT IN ASI

HND Computer Studies	ASI Sevilla	ASI Barcelona:
5.1	1.1 and 1.2	2.1 and 2.2
5.2	1.6 and 1.8	2.6 and 2.8
5.3	1.3 and 1.8	2.3 and 2.8
5.4	1.8	2.8
5.5	1.9	2.9
5.6	1.6, 1.8	2.6, 2.8
5.7	1.2	2.2
5.8	1.9	2.9
5.9	1.2	2.2
5.10	1.7	2.7
5.11	-	-
5.12	1.3	2.3
5.13	1.1	2.1
5.14	-	-
5.15	-	-

Comments

The table shows that most of the contents taught in HND Computer Studies are also taught in ASI, sometimes divided among one or more units. However, the following differences should be noted:

- Unit 1.6 “Development of Functions in the Computing System” in Sevilla and unit 2.8 “Implementation of Computing Applications in Management” in Barcelona should include the quality assurance principles of unit 5.6 “Quality Management Principles” of HND Computer Studies as an integral part of their content.
- Unit 5.11 “Visual Programming” of HND Computer Studies has no match with ASI in either Barcelona or Sevilla.
- There is no specific unit in either Barcelona or Sevilla that matches Unit 5.14 “Multi-Media and Internet Development” of HND Computer Studies.
- Unit 5.15 “Object-oriented development” of HND Computer Studies has no match with ASI in either Barcelona or Sevilla.

If these changes were effected, the students of ASI in Spain would study the same contents as HND Computer Studies students, although no value judgements can be made regarding the degree of in-depth treatment given to the contents.

HND COMPUTER STUDIES UNITS TAUGHT IN DAI

HND Computer Studies	DAI Madrid	DAI Barcelona
5.1	4.1	3.1 and 3.6
5.2	4.2	3.3
5.3	4.3	3.4
5.4	4.2	3.3
5.5	-	3.13
5.6	4.2	3.3
5.7	4.1	3.6
5.8	-	3.13
5.9	4.1	3.6
5.10	4.2 and 4.4	3.8
5.11	4.3 and 4.5	3.7 and 3.9
5.12	4.3	3.4
5.13	4.1	3.6 and 3.9
5.14	4.5	3.1
5.15	4.5	3.7

Comments

The table shows that most of the contents taught in HND Computer Studies are also taught in DAI, sometimes divided among one or more units. However, the following differences should be noted

- Unit 4.1 “Multi-user and Networking Computing Systems” in Madrid and unit 3.1 “Operating Systems” in Barcelona should perhaps be extended with a more in-depth explanation of computer hardware.
- The DAI Madrid course does not appear to include a unit which matches units 5.5 “Computer Implementation Project” and unit 5.8 “Advanced Computing project” of HND Computer Studies, in requiring the student to make practical use of global knowledge learnt during the course
- The units 4.2 “Analysis and Detailed Design of Computing Applications in Management” in Madrid and unit 3.3 “Analysis and Design of Computer Applications” in Barcelona lack the quality assurance elements of Unit 5.6 “Quality Management Principles” of HND Computer Studies.

If these changes were effected, the DAI students in Spain would study the same contents as HND Computer Studies students, although no value judgements can be made regarding the degree of in-depth treatment given to the contents.

ASI UNITS TAUGHT IN HND COMPUTER STUDIES

ASI (Sevilla):	HND Computer Studies
1.1	5.1 and 5.13
1.2	5.7, 5.9
1.3	5.3 and 5.12
1.4	-
1.5	-
1.6	5.2, 5.3
1.7	5.10
1.8	5.3 and 5.6
1.9	5.5 and 5.8
1.10	-
1.11	-

Comments

The contents of the Sevilla and Barcelona courses are very similar. The Sevilla course has been used for this comparison.

The table shows that most of the contents taught in ASI are also taught in HND Computer Studies, sometimes divided among one or more units. However, the following differences should be noted:

- Unit 5.9 “Networking” of HND Computer Studies should include reference to specific network operating systems.
- Unit 1.4 “Relationships in the work place” has no match in HND Computer Studies
- Unit 1.5 “Training and job orientation” has no match in HND Computer Studies
- Unit 1.10 “Work place training” has no match in HND Computer Studies

If these changes were effected, the HND Computer Studies students in the UK would study the same contents as ASI students, although no value judgements can be made regarding the degree of in-depth treatment given to the contents.

DAI UNITS TAUGHT IN HND COMPUTER STUDIES

DAI Barcelona	HND Computer Studies
3.1	5.1
3.2	5.10
3.3	5.2 and 5.4
3.4	5.3 and 5.12
3.5	-
3.6	5.7 and 5.9
3.7	5.11 and 5.15
3.8	5.10
3.9	5.14
3.10	-
3.11	-
3.12	-
3.13	5.5 and 5.8
3.14	-

Comments

The contents of the Barcelona and Madrid courses are very similar. The Barcelona course has been used for this comparison.

The table shows that most of the contents taught in DAI are also taught in HND Computer Studies, sometimes divided among one or more units. However, the following differences should be noted:

- Unit 3.5 "Fourth Generation and Environment CASE Tools" has no match in HND Computer Studies
- Unit 3.10 "Relationships in the work place" has no match in HND Computer Studies
- Unit 3.11 "Training and work orientation" has no match in HND Computer Studies
- Unit 3.12 "Training in the Work place" " has no match in HND Computer Studies

If these changes were effected, HND Computer Studies students in the UK would study the same contents as DAI students, although no value judgements can be made regarding the degree of in-depth treatment given to the contents.

SPAIN

ASI (Administration of Computing Systems)

OBJECTIVES

Those students who obtain the ASI qualification should be able to demonstrate general competence in the following

- Installation, operation and maintenance of the requirements of low and middle level computing systems upon which a company's management and administration depends
- Provision of direct or first call support to end users
- Application and compliance with current legal requirements in the field.

1. CENTRO DE ESTUDIOS PROFESIONALES, SEVILLA

COURSE UNITS

- 1.1. End user and multi-user computing system (256 hrs.)
 - 1.1.1. Artificial intelligence.
 - 1.1.2. Computing systems.
 - 1.1.3. Hardware: installation and maintenance.
 - 1.1.4. Concepts and types of operating systems.

- 1.1.5. MS-DOS; UNIX and WINDOWS.
- 1.1.6. Operating system administration.
- 1.2. Local Area Networks (288 hrs.)
 - 1.2.1. Network concepts.
 - 1.2.2. Architecture and topology.
 - 1.2.3. LAN operating system.
 - 1.2.4. Local Area network operating systems NOVELL-NETWARE and WINDOWS NT.
 - 1.2.5. Local Area network administration.
- 1.3. Basic programming concepts (256 hrs.)
 - 1.3.1. Program concepts.
 - 1.3.2. Data structures.
 - 1.3.3. Structured and modular programming.
 - 1.3.4. C language.
 - 1.3.5. Advanced C Language.
- 1.4. Relationships in the work-place (64 hrs.)
- 1.5. Training and job orientation (64 hrs.)
- 1.6. Development of functions in the computing system (198 hrs.)
 - 1.6.1. Systems programming techniques.
 - 1.6.2. Development of computer project techniques.
 - 1.6.3. Methodology of design and systems development.
- 1.7. Systems of database management (SGBD) (220 hrs.)
 - 1.7.1. Concepts and types of databases.
 - 1.7.2. Entity-relationship model.
 - 1.7.3. Relational model.
 - 1.7.4. Normalization.
 - 1.7.5. SQL Language.
 - 1.7.6. SGBD, Access, Informix, Oracle
 - 1.7.7. Distributed databases.
 - 1.7.8. Database administration.
- 1.8. Implementation of computing applications management (242 hrs.)
 - 1.8.1. The company and its environment.
 - 1.8.2. Company computing systems, types.
 - 1.8.3. Specific purpose and general purpose computing applications.
 - 1.8.4. Function of applications to senior management requirements
 - 1.8.5. Documentation and formation of end users.
- 1.9. Integrated work (95 hrs.)
- 1.10. Work-place training (285 hrs.)
- 1.11. Computing in Andalusia (32 hrs. in First Year)

**2. CENTRO DE ESTUDIOS DE FORMACION PROFESIONAL SUPERIOR
ABAT OLIVA, BARCELONA**

COURSE UNITS

- 2.1. End user and multi-user computing systems (210 hrs.)
 - 2.1.1. Artificial intelligence and computing systems.
 - 2.1.2. Hardware.
 - 2.1.3. Operating system.
 - 2.1.4. Use of systems.
 - 2.1.5. Specific end user and multi-user operating systems.
 - 2.1.6. Operating systems administration
 - 2.1.7. Administration of specific end user and multi-user operating systems.
- 2.2. Management of local area networks (240 hrs.)
 - 2.2.1. Telematics.
 - 2.2.2. LAN Architecture.
 - 2.2.3. LAN operating systems.
 - 2.2.4. Use of specific Local Area network operating systems.
 - 2.2.5. Administration of Local Area network operating systems.
 - 2.2.6. Data transportation services.
 - 2.2.7. Administration of specific network operating systems.
- 2.3. Basic programming concepts (240 hrs.)
 - 2.3.1. Programming
 - 2.3.2. Data structures.
 - 2.3.3. Structured programming.
 - 2.3.4. Modular programming.
 - 2.3.5. Introduction to recursive programming.
 - 2.3.6. C Language.
 - 2.3.7. C Language extended to file management.
- 2.4. Relationships in the work-place (60 hrs.)
- 2.5. Training and job orientation (60 hrs.)
- 2.6. Development of functions in the computing system (180 hrs.)
 - 2.6.1. Systems programming techniques.
 - 2.6.2. Development of projects on operating systems.
- 2.7. Systems of database management (SGBD) (190 hrs.)
 - 2.7.1. SGBD.
 - 2.7.2. Entity-relationship model (CHEN).
 - 2.7.3. Relational model.
 - 2.7.4. SQL data language definition.
 - 2.7.5. SQL data language manipulation.
 - 2.7.6. Normalization.

- 2.7.7. Distributed databases.
- 2.7.8. Administrator for a relational SGBD.
- 2.8. Implementation of computing applications management (210 hrs.)
 - 2.8.1. The company and its environment.
 - 2.8.2. Computerization of company management.
 - 2.8.3. Computer application for general purposes.
 - 2.8.4. Computer applications for specific purposes.
 - 2.8.5. Features of management computing applications.
 - 2.8.6. User skills.
- 2.9. Synthesis (90 hrs.)
- 2.10. Work-place training (350 hrs.)
- 2.11. English Language in first and second years

SPAIN

DAI (Development of Computer Applications)

OBJECTIVES

Those obtaining the DAI qualification should be able to demonstrate general competence in the following:

- Detailed design of computer applications using as a base stated specifications.
- Definition and description of data structures, on a theoretical as well as a practical level.
- Definition and description of modular architecture.
- Definition and description of processing and user interfacing.
- Specification of the guidelines for the development of unitary testing and the integration of option units or programmes.
- Codification, testing and streamlining of programmes.
- Elaboration and maintenance of descriptive documents about the creation, production and operation of computing applications.

**1. CENTRO DE ESTUDIOS DE FORMACION PROFESIONAL SUPERIOR
ABAT OLIVA, BARCELONA**

COURSE UNITS

- 3.1. Operating Systems (150 hrs.)
 - 3.1.1. Artificial Intelligence and Computing Systems
 - 3.1.2. Operating Systems
 - 3.1.3. Operating Systems Control Programs



- 3.1.4. Operating Systems Processing Programs
- 3.1.5. Operating Systems
- 3.1.6. End Users and Multi-users Operating Systems
- 3.1.7. Windows '98
- 3.1.8. Windows NT
- 3.2. Database Analysis and Design (60 hrs.)
 - 3.2.1. Databases
 - 3.2.2. Structures
 - 3.2.3. Entity-Relationship Model
- 3.3. Analysis and Design of Computing Applications (190 hrs.)
 - 3.3.1. Artificial Intelligence Systems
 - 3.3.2. Methodologies of Development
 - 3.3.3. Computer-assisted Analysis and Design
- 3.4. Structured and Modular Programming (180 hrs.)
 - 3.4.1. Programming
 - 3.4.2. Data Structure
 - 3.4.3. Structured Programming
 - 3.4.4. Modular Programming
- 3.5. Fourth Generation Environment and CASE Tools (120 hrs.)
 - 3.5.1. Fourth Generation Development Tools
 - 3.5.2. CASE Tools
- 3.6. Local Area Networking (180 hrs.)
 - 3.6.1. Telematics.
 - 3.6.2. LAN Architecture.
 - 3.6.3. LAN Operating System.
 - 3.6.4. Microsoft networks.
 - 3.6.5. Novell networks.
 - 3.6.6. Internet.
- 3.7. Advanced Programming (150 hrs.)
 - 3.7.1. Programming and structure of dynamic data.
 - 3.7.2. Introduction to recursive programming.
 - 3.7.3. Object-oriented programming.
 - 3.7.4. Objects.
 - 3.7.5. Implementation of the properties of object-oriented programming (POO).
 - 3.7.6. Management system of object-oriented database (SGBDOO).
- 3.8. Systems for management of relational databases (SGBDR) (120 hrs.)
 - 3.8.1. Relational model.
 - 3.8.2. SQL language.
 - 3.8.3. Normalization.

- 3.8.4. ORACLE/DEVELOPER.
- 3.8.5. Engineering of computing systems. DESIGNER 2000.
- 3.9. Design and implementation of presentation services in graphic backgrounds (120 hrs.)
 - 3.9.1. Interfacing design.
 - 3.9.2. Graphic user interfacing (GUI).
 - 3.9.3. Multi-media environments.
- 3.10. Relationships in the work place (60 hrs.)
- 3.11. Training and work orientation (60 hrs.)
- 3.12. Training in the work-place (350 hrs.)
- 3.13. Synthesis (90 hrs.)
- 3.14. English Language in first and second years

2. CENTRO DE ESTUDIOS PROFESIONALES, MADRID

COURSE UNITS

- 4.1. Multi-user and Networking Computing Systems(260 hrs.)
 - 4.1.1. Introduction to Computing Systems and Operating Systems
 - 4.1.2. Multi-user Operating Systems:UNIX
 - 4.1.3. Networking Computing Systems
 - 4.1.4. Networking Operating Systems:NOVELL-NETWARE
 - 4.1.5. Interconnection of Systems
 - 4.1.6. Legal Requirements for Computing
- 4.2. Analysis and Detailed Design of Computing Applications in Management (320 hrs.)
 - 4.2.1. Company Computing Systems and Communication
 - 4.2.2. The Computing Plan
 - 4.2.3. Computing Applications for Company Management
 - 4.2.4. Methodologies for the Development of Computing Applications
 - 4.2.5. Consulting Tools for the Development of Applications
 - 4.2.6. Structured System Analysis
 - 4.2.7. The Data Dictionary.
 - 4.2.8. SGBD
 - 4.2.9. Systems Design
 - 4.2.10. Computer-assisted Analysis and Design: CASE
 - 4.2.11. Project Management and Trends
 - 4.2.12. Tools for Management Projects
 - 4.2.13. Assessment of Projects
 - 4.2.14. Software Quality
 - 4.2.15. Techniques and Strategies of Software Testing
 - 4.2.16. Software Maintenance

- 4.3 Structured Language Programming (380 hrs.)
 - 4.3.1. Basic Programming Concepts
 - 4.3.2. Programming Structure
 - 4.3.3. Data Structure
 - 4.3.4. Methodology of Programming
 - 4.3.5. Tools for Developing and Testing Programs
 - 4.3.6. Programming Documents
- 4.4. Fourth Generation and CASE Tools (310 hrs.)
 - 4.4.1. Database system management (SGBD)
 - 4.4.2. Relational model: Statics.
 - 4.4.3. Relational model: Dynamics.
 - 4.4.4. SQL Language.
 - 4.4.5. Normalization theory.
 - 4.4.6. Fourth generation development tools.
 - 4.4.7. The process of database creation.
 - 4.4.8. Conceptual design.
 - 4.4.9. Logical design.
 - 4.4.10. Basic concepts of CASE technology.
 - 4.4.11. Techniques of applications development.
 - 4.4.12. Methodology of applications technology.
 - 4.4.13. Repositories and dictionaries of information resources.
 - 4.4.14. CASE tools.
 - 4.4.15. Development of applications in the client/server background.
- 4.5. Design and implementation of presentation services in graphic backgrounds (220 hrs.)
 - 4.5.1. Man-machine interfacing.
 - 4.5.2. Interfacing design.
 - 4.5.3. Interfacing design criteria.
 - 4.5.4. Dialogue framework.
 - 4.5.5. Graphic user interfacing (GUI)
 - 4.5.6. Event programming.
 - 4.5.7. Programming under graphic interfacing structure.
 - 4.5.8. Graphic environments.
 - 4.5.9. POO in graphic environments.
 - 4.5.10. Use of specific computing applications.
 - 4.5.11. Multi-media environments.
 - 4.5.12. Applications design.
- 4.6. Relationships in the work place (65 hrs.)
- 4.7. Training and work orientation (65 hrs.)
- 4.8. Training in the work-place(380 hrs.)

UNITED KINGDOM

Higher national diploma in computer studies

Objectives

Course units

- 5.1. Computer Platforms
 - 5.1.1. Computer systems: processor, backing store, peripherals, computer selection.
 - 5.1.2. Operating Systems: overview of functions, computer operations, network administration.
 - 5.1.3. Upgrading of systems.
 - 5.1.4. Network installation: network resources, external links, network planning, user-support planning, security.
- 5.2. Systems Analysis
 - 5.2.1. Lifecycle models: systems lifecycle, evaluation of models.
 - 5.2.2. Systems investigation: fact-finding techniques, fact-recording methods and standards.
- 5.3. Software Constructs and Tools
 - 5.3.1. Problem-solving theory, applications and techniques: problem-solving applications, overview of problem-solving theory and techniques, testing and documenting the solution
 - 5.3.2. Business models: model definition, spreadsheet features, design and implementation of spreadsheet-based models.
 - 5.3.3. Programming methodology: storage, control structures, programming language syntax, program design, programming standards and practice.
- 5.4. Computing Solutions
 - 5.4.1. Information and contemporary applications: information and data, contemporary applications.
 - 5.4.2. Information processing: tools, information processing.
 - 5.4.3. Information systems within an organisation: measures, use of measures.
- 5.5. Computer Implementation Project
 - 5.5.1. Plan an appropriate project: project selection, project specification, project plan.
 - 5.5.2. Develop the project: design/structure, development, documentation.
 - 5.5.3. Verify the project: plan, validation techniques, implementation.
 - 5.5.4. Evaluate the project: demonstration, audience, documentation.
- 5.6. Quality Management Principles
 - 5.6.1. Systems analysis and design tools: project management, systems maintenance.



- 5.6.2. Quality assurance: quality assurance factors, quality assurance tools.
- 5.6.3. Professional standards: legal requirements, professional requirements.
- 5.7. Communication Technology
- 5.7.1. Performance of communication systems: performance factors, communication technologies
- 5.7.2. Impact of communications technology: business factors, communication factors.
- 5.7.3. Cost and security: development costs, security costs, security mechanisms.
- 5.8. Advanced Computing Project
- 5.8.1. Plan an appropriate project: project selection, project specification, project plan.
- 5.8.2. Develop the project: design, development, documentation.
- 5.8.3. Verify the project: verification plan, verification techniques, verification implementation.
- 5.8.4. Project evaluation: demonstration, audience, documentation, future development.
- 5.9. Networking
- 5.9.1. Benefits of networks: network principles and applications definition of network, network use.
- 5.9.2. Design/evaluation of networks: network architecture concepts, network design.
- 5.9.3. Network software: user factors, login scripts, hardware and software factors.
- 5.9.4. Network Management: management responsibilities, control resource usage.
- 5.10. Data Analysis and Database Design
- 5.10.1. Databases: implement a design, data manipulation, query and reporting, application links.
- 5.10.2. Small Databases: relational model, data analysis, top-down analysis, bottom-up analysis, data definition.
- 5.11. Introduction to Programming
- 5.11.1. Structured programming: storage, control structures, programming language syntax, program design, programming standards and practice.
- 5.11.2. Modularisation: use of functions/procedures, scope of variables, parameters.
- 5.11.3. Test schedules: error types, test documentation, test data and schedules, error detection techniques.
- 5.12. Computer Architecture
- 5.12.1. Computer systems: processor, backing store, peripherals, computer selection.
- 5.12.2. Operating systems: overview of functions, computer operations, network administration.

- 5.12.3. Data representation, simple logic and fetch-execute cycle of a model: data representation, logic and fetch-execute cycle.
- 5.12.4. Low-level programs: machine code, assembly code, critical appreciation of machine performance.
- 5.13. Multi-media and Internet Development
- 5.13.1. Web pages/frames: environment, page element, survey, design, development.
- 5.13.2. Multi-media applications: current applications, design/plan, elements, development, documentation.
- 5.13.3. Multi-media/Internet technique: techniques survey/selection, design, development.
- 5.14. Object -oriented Development
- 5.14.1. Object-oriented concepts: general trends in software engineering, characteristics of object-oriented systems, methodologies and methods.
- 5.14.2. Object-oriented analysis and design: modelling techniques, advanced concepts, additional items, system design, object design, interface design.
- 5.14.3. Object-oriented test plan: testing.
- 5.14.4. Object-oriented applications: range, relative advantages.

ENTRY REQUIREMENTS AND QUALIFICATION LEVELS

SPAIN

The ASI and the DAI are at Level 4 (Higher Technician Training). To enter these it is necessary to have completed "Bachillerato" (Spanish High School Diploma) or "Formación profesional no superior." (Lower Technician Training). It is also possible to access these qualifications after the age of 20 by passing an aptitude test related to the objectives of "Bachillerato" and the DAI/ASI qualification itself.

From these qualifications, it is possible to proceed to further diplomas and related qualifications.

ENGLAND

The HND in Computer Studies is at Level 4. Students over 18 years of age may for enter this diploma if they can demonstrate they have no difficulties in achieving the proposed level.

Once achieved, the HND in Computer Studies can give normal or accelerated entry to degree level studies.

E-COMMERCE

When the application for this project was prepared in 1997, we planned to look at three subject areas at Level 4 in order to develop new transnational, mutually accredited qualifications. These subject areas were Business, Computing and Design.

However, since approval of the project in 1998, there have been major developments in the area of E-Commerce and, as reported by EDEXCEL, a significant demand from potential students for a qualification in this area of work. Such a qualification, delivered through appropriate training at schools and colleges, would enable young people to find work in companies or set up their own enterprises in a new type of commerce that literally knows no national boundaries.

At the Transnational Management Committee meeting in Lisboa in February 1999, the representatives of the Departamento do Ensino Secundário (DES), Portugal, were able to announce that approval had been given by the Portuguese government for the development of a series of new national vocational qualifications at Level 4. The representatives also requested that the Leonardo Pilot Project look at developments in E-Commerce in order to provide research information useful to DES. This request was warmly welcomed by the meeting and unanimously agreed.

Following the meeting in February 1999, the partners established a Subject Working Group for E-Commerce to look at existing programmes in Portugal and the UK.

The Group, in order to have up-to-date information relevant to the development of an E-Commerce qualification, has monitored developments in this new area of work, particularly the e-Europe initiative launched in December 1999 that proposed ambitious targets to bring the benefits of the Information Society within reach of all Europeans. After the invitation by DES for the project to provide research information, it was especially appropriate that the e-Europe initiative was announced during the period of the Portuguese presidency.

After 1999 the Lisbon summit in March 2000 set clear strategic goals for the EU to become the most competitive and dynamic knowledge-based economy. Commissioner Erkki Liikanen listed the priorities for e-Europe, many of which were directed at ensuring that the right conditions for E-Commerce flourish.

These priorities will be directly supported by the development of new transnational qualifications that bring together communication infrastructures and business processes and procedures. The extension of the project to look at developments in E-Commerce is therefore particularly relevant to current thinking and the future needs of young people.

One of the partner schools (Escola de Comércio de Lisboa) has offered a Centre designed Level 4 course in E-Commerce and Logistics and has developed expertise in this area. EDEXCEL, the major UK accrediting agency for vocational qualifications and a partner to the project, has also been working to develop a new Higher National Diploma and National Diploma in E-Commerce and the project has benefited from access to early drafts of these.

The following tables show how the Portuguese and draft HND proposals relate to each other and they are supplemented by an E-Commerce submission in the next section of this project report. A copy of the latest available published draft of the EDEXEL proposal is included.





BTEC/HNC/HND UK Draft qualification)	ESCOLA DE COMÉRCIO DE LISBOA Existing course
-----------------------------------------	-------------------------------------------------

<p><i>E-Commerce (Marketing)</i> <i>E-Commerce (Business)</i> <i>E-Commerce (Multimedia)</i></p> <p>Unit 1: E-Business development Work Unit 2: E-Commerce technology Unit 3: Internet studies Unit 4: E-Commerce project Unit 5: Supply chain management Unit 6: Website Design Unit 7: Marketing for E-Commerce Unit 8: e-marketing processes in practice Unit 9: Advertising, promotion and sales Unit 10: Market planning and intelligence Unit 11: Internet marketing Planning Unit 12: Law Unit 13: Management information systems Unit 14: Data management Unit 15: E-procurement Unit 16: Management accounting Unit 17: Managing financial resources Unit 18: Personal development Unit 19: Introduction to programming Unit 20: Programming principles Unit 21: Object oriented design and programming Unit 22: Computer applications in art and design Unit 23: Image manipulation applications Unit 24: Systems software Unit 25: Data analysis & data base designs Unit 26: Team management Unit 27: Competitive strategy Unit 28: Human resource management Unit 29: E-Business management</p>	<p><i>Curso de Especializacao Tecnologica em Comercio Electronico (Specialist Technician in E-Commerce)</i></p> <p>Unit 1: Health and Safety at Work Unit 2: English Unit 3: The new economy Unit 4: Digital marketing Unit 5: Net merchandising Unit 6: New marketing tools Unit 7: Information technologies Unit 8: Supply and logistics</p>
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Tabular comparison of E-Commerce course units (subject only)

HND E-Commerce	CET Comercio Electronico
Unit 1	Unit 3, Unit 4
Unit 2	Unit 7
Unit 3	Unit 3, Unit 7
Unit 4	Unit 9
Unit 5	Unit 8
Unit 6	Unit 5, Unit 7
Unit 7	Unit 4, Unit 6
Unit 8	
Unit 9	
Unit 10	
Unit 11	
Unit 12	
Unit 13	Unit 4
Unit 14	Unit 6
Unit 15	Unit 7, Unit 8
Unit 16	
Unit 17	
Unit 18	
Unit 19	Unit 7
Unit 20	Unit 7
Unit 21	
Unit 22	
Unit 23	Unit 8
Unit 24	
Unit 25	
Unit 26	
Unit 27	
Unit 28	
Unit 29	

Summary conclusions

These are two very different syllabuses prompted by different requirements. The syllabus from Escola de Comércio is designed to provide a short course to meet a specific and growing demand from business and individuals. Whilst it is concerned to provide training in both the electronic and logistic aspects of E-Commerce at level 4, it does not aim to be as comprehensive or aspire to the status of qualification such as the Higher National Diploma.

Further significant differences include:

1. The Portuguese syllabus is concerned with underpinning principles and concepts, while the BTEC syllabus also focuses on the practical application of learning.
2. Although the fundamentals of both syllabuses are similar, the BTEC syllabus has a significantly greater range and offers three pathways; Marketing, Business and Multimedia.

UNITED KINGDOM

Draft BTEC Higher National Qualifications in E-Commerce (Level 4 UK)
Following approval, the course will lead to the award of a BTEC Higher National Certificate or Diploma in one of the following

- E-Commerce (Marketing)
- E-Commerce (Business)
- E-Commerce (Multimedia)
- and is designed to equip students with the knowledge, understanding and skills required for success in current and future employment or for progression to an undergraduate degree.

The qualification is being developed to meet the needs of the major functions in business, hence the inclusion of the functional pathways. The pathway qualifications will ensure professional progression through recognition by relevant professional bodies and also underpin much of the knowledge and understanding required for the relevant NVQ level 4 units in Accounting, Management and Personnel.

Students who will enter with at least one of the following are likely to benefit more readily from the programme:

- a BTEC National Certificate or Diploma in Business or E-Business
- an Advanced VCE (previously known as GNVQ)
- a BTEC National Certificate or Diploma of any other related title
- at least one Advanced GCE pass, with appropriate supporting passes at GCSE at grades A, B or C
- for mature candidates, appropriate work experience

For students already in employment or with relevant previous experience, Accreditation of Prior Learning (APL) will ensure that outcomes already achieved by an applicant, whether through experience or through other qualifications, can be identified, authenticated and accredited against the qualification specification without the need for repetition. Any student able to demonstrate that all the requirements for one or more units are met should be accredited with the achievement and be eligible for certification.

Programme design

Programme design and delivery will reflect the balance of skills and knowledge needed to competently work in the business and professional environment. The course will balance and integrates theory and practice, to ensure that the qualification supports both career prospects and educational progression.

The Higher National qualifications in E-Commerce

- will be normally designed to last for two years, although individual programmes may vary from this depending on prior experience and learning (APL)
- will require a Diploma to comprise 16 units and a Certificate 10 units
- will comprise core units which are compulsory. The Diploma has 8 core units, the Certificate 6 core units.
- will comprise option units some of which form specific functional pathways and are consequently compulsory for students seeking the qualification titles: E-Commerce (Multimedia), E-Commerce (Marketing). Other option units will be available.

Unit design


The Higher National qualifications consist of standard unit templates, which include clearly defined outcomes and content and clear assessment and grading criteria. The qualifications consist of units that have a notional level indicator of H1 and H2 indicating the relative intellectual demand, complexity and depth of study and learner autonomy.

- At H1 level the emphasis is on the application of knowledge, skills and understanding, use of conventions in the field of study, use of analytical skills and selection and organisation of information.
- At H2 level the emphasis is on application and evaluation of contrasting ideas, principles, theories and practices, greater specialism in the field by study, and an increasing independence in systematic enquiry and analysis.

Programme structure

When choosing option units, students

- seeking the E-Commerce title may select options from across the functional pathways to a maximum of three from each, as well as from the general optional units
- following a functional pathway must achieve the specific pathway option units. Further option units may be selected from across the other functional pathways to a maximum of three from each, as well as from the general optional units.



All units are defined in terms of "guided learning hours". This means all times when a member of staff is present to give specific guidance and includes lectures, tutorials and supervised study. Each unit has a demand which represents approximately 60 guided learning hours.

Key skills

All Higher National qualifications feature Key Skills. These are transferable skills which play an essential role in developing personal effectiveness for adult and working life and in the application of specific vocational skills:

- Application of Number
- Communication
- Information Technology
- Working with others
- Improving own learning and performance
- Problem solving

DESCRIPTION OF THE DRAFT UNITS

Core Units:

Unit UK 1: E-Business development

Description:

Summary of outcomes:

To achieve this unit the student must:

- Understand the structure and aims of business organisations
- Evaluate the impact of E-Commerce on business and consumers
- Examine the development of an on-line business
- Formulate a business plan for an on-line business

Unit UK 2: E-Commerce technology

Description:

Summary of outcomes:

To achieve this unit the student must:

- Understand how to create and manipulate databases in E-Commerce
- Examine Internet technology
- Identify and apply the main technical requirements that support E-Commerce
- Manage security issues in E-Commerce

Unit UK 3: Internet studies

Description:

Summary of outcomes

To achieve this unit the student must:

- Examine the historical, social and political development of the internet
- Discuss the functionality and applications of the internet
- Examine the context in which E-Commerce exists within the internet
- Assess current developments and key organisations within E-Commerce

Unit UK 4: E-Commerce project

Description:

Summary of outcomes:

To achieve this unit the student must:

- Select, specify and plan an appropriate project
- Develop the project to the agreed specification and plan
- Monitor and control the progress of the project
- Present and critically evaluate the completed project

Unit UK 5: Supply chain management

Description:

Summary of outcomes:

To achieve this unit the student must:

- Explain the evolution of supply chain management and its contribution to business objectives
- Display knowledge of how web-based e-business applications contribute to the full integration of the supply chain
- Show comprehension of strategies used by organisations to develop and maintain effective supplier relationships
- Identify systems, policies and processes for web-based transactions

Unit UK 6: Website design

Description:

Summary of outcomes:

To achieve this unit the student must:

- Assess the design and functionality of existing and established E-Commerce sites
- Examine a range of web authoring tools for creating multimedia web sites
- Develop an integrated set of web pages/frames
- Develop interactive applications on a web server

Unit UK 7: Marketing for E-Commerce

Description:

Summary of outcomes

To achieve this unit the student must:

- Investigate the application marketing concepts to E-Commerce
- Apply segmentation criteria to E-Commerce markets
- Analyse sales techniques and practices within E-Commerce
- Assess promotional methods suitable to E-Commerce

Unit UK 8: E-marketing processes in practice

Description:

Summary of outcomes:

To achieve this unit the student must:

- Identify suitable internet applications of a range of marketing processes
- Evaluate the use of internet marketing processes adopted by an identified business
- Develop an outline implementation plan for internet marketing for a first time user

Unit UK 9: Internet Marketing Fulfilment

Description:

Summary of outcomes:

To achieve this unit the student must:

- Assess direct marketing
- Identify back-office systems
- Evaluate sales channels

Unit UK 10: Advertising, promotion and sales in e-commerce

Description:

Summary of outcomes:

To achieve this unit the student must:

- Assess the suitability of internet applications for marketing communications
- Evaluate internet advertising and promotion techniques
- Evaluate sales channels suitable for E-commerce

Unit UK 11: Market planning and intelligence for E-Commerce

Description:

Summary of outcomes:

To achieve this unit the student must:

- Identify and evaluate market research techniques appropriate to e-commerce
- Identify and evaluate marketing audits appropriate to E-Commerce
- Assess direct marketing approaches
- Formulate a market intelligence system

Unit UK 12: E-business law

Description:

Summary of outcomes:

To achieve this unit the student must:

- Investigate sources of law in E-Commerce both online and offline and understand how law is made in the UK, Europe and internationally
- Identify the laws intended to protect intellectual property and 'intangible assets' like brands: focussing in particular on copyright law
- Explore data protection laws and understand in what commercial situations privacy laws will apply
- Understand basic principles of consumer protection law and study different circumstances in which these will apply in E-Commerce situations

Unit UK 13: Management information systems

Description:

Summary of outcomes:

To achieve this unit the student must:

- Explain the purpose and scope of an E-Commerce application
- Evaluate the use of an E-Commerce application to an existing business system
- Assess the compatibility of new E-Commerce applications with existing MIS functions
- Evaluate differing options to establish, maintain and monitor E-Commerce software applications



Unit UK 14: Data handling

Description:

Summary of outcomes:

To achieve this unit the student must:

- Use spreadsheets and statistical techniques to collect, analyse and interpret data
- Model the data to develop understanding and produce reliable forecasts
- Apply quantitative techniques to business situations

Unit UK 15: E-procurement

Description:

Summary of outcomes

To achieve this unit the student must:

- Explain how the procurement function has evolved from a pure transactional focus
- Demonstrate value-added procurement concepts
- Evaluate various applications of e-procurement within a business
- Evaluate performance improvement associated with the implementation of e-procurement

Unit UK16: Management accounting

Description:

Summary of outcomes:

To achieve this unit the student must:

- Explain the concept and measurement of cost within business organisations
- Collect and analyse cost information for use within an organisation
- Prepare budgets and cash flow forecasts for an organisation
- Monitor and control costs and budgets within an organisation

Unit UK 17: Managing financial resources

Description:

Summary of outcomes

To achieve this unit the student must:

- Identify the sources of finance available to business
- Explain the use of finance as a resource within the business
- Analyse the financial performance of businesses
- Make financial decisions based on financial information available

Unit UK 18: Personal development

Description

Summary of outcomes

To achieve this unit a student must:

- Undertake responsibility for own personal and career development
- Evaluate progress and achievement of personal development and learning targets
- Develop a range of interpersonal and transferable skills
- Demonstrate self-managed learning in a professional context

Unit UK 19: Introduction to programming

Description:

Summary of outcomes:

To achieve this unit the student must:

- Design and develop code using structured programming methods
- Use modularisation appropriate to the chosen programming language
- Create and apply appropriate test schedules

Unit UK 20: Programming principles

Description:

Summary of outcomes:

To achieve this unit the student must:

- Understand the concepts of operating systems and programming languages
- Utilise software design techniques
- Analyse and apply programming techniques
- Implement formal testing procedures

Unit UK 21: Object oriented programming

Description:

Summary of outcomes:

To achieve this unit the student must:

- Demonstrate an understanding of object oriented design
- Demonstrate an understanding of the principles of object oriented programming
- Produce a program from a design using an object oriented language

Unit UK 22: Computer applications in art and design

Description:

Summary of outcomes:

To achieve this unit the student must:

- Explore and use a range of painting and drawing software applications
- Digitise and manipulate objects or images
- Investigate and use creative typographic design applications
- Investigate and use desk-top publishing and text editing software applications

Unit UK 23: Image manipulation applications

Description:

Summary of outcomes:

To achieve this unit the student must:

- Review a range of digital artwork
- Access, handle and work with images
- Demonstrate the ability to use image manipulation tools and techniques
- Record image manipulation and creation, demonstrating the ability to use advanced techniques

Unit UK 24: Systems software

Description:

Summary of outcomes

To achieve this unit the student must:

- Use utility software tools for system configuration and security
- Investigate and apply translators and linkers
- Evaluate the features of operating systems
- Produce code which uses explicit system calls

Unit UK 25: Data analysis and database design

Description:

Summary of outcomes

To achieve this unit the student must:

- Design small databases
- Implement and use databases

Unit UK 26: Team management

Description:

Summary of outcomes:

To achieve this unit the student must:

- Analyse the development needs of teams and individuals
- Demonstrate an understanding of group functions
- Evaluate techniques in team motivation
- Evaluate performance of teams and individuals

Unit UK 27: Competitive strategy

Description:

Summary of outcomes

To achieve this unit the student must:

- Examine the process of strategic planning in E-Commerce
- Analyse approaches to strategic planning in E-Commerce
- Examine approaches to strategic implementation in E-Commerce

Unit UK 28: Human resource management

Description:

Summary of outcomes

To achieve this unit the student must:

- Examine the traditional view of personnel management and the new approach of human resource management
- Evaluate the procedures and practices used for obtaining suitable employees
- Establish the effectiveness of principles and procedures for monitoring and rewarding the employee
- Examine voluntary and involuntary forms of employee exit from the organisations and the termination of the employment relationship

Unit UK 29: E-business management

Description

Summary of learning outcomes

To achieve this unit a student must:

- Evaluate organisational systems
- Apply techniques of work planning and organisation
- Evaluate quality systems



Technological Specialisation in E-Commerce (Level 4 Portugal)

Professional profile

The course leads to the degree Specialist Technician in E-Commerce

Aims of the course

At the end of the course, students will be able to

1. Give a technological basis to the strategic positioning of the company at the level of:
 - Definition of type of site
 - Definition of business areas for inclusion
 - Establishment of type of products/services for sale or advertising (in collaboration with the Commercial Department)
 - Supply of elements for the constitution of price and electronic commercial strategy
 - Supply of information about technological abilities for the implementation of net-marketing strategies (in collaboration with the Marketing Department)
2. Manage a Company website, encompassing
 - Consideration of legal and socio-cultural framework and conditions
 - Promotion and implementation of security policies
 - Adaptation of the website layout to
 - Positioning of the company
 - Commercial and marketing policies
 - Needs of the consumer
 involving the capacity to modify the graphic design or explain the modification needs to third parties.
 - Management and updating of product and services databases
 - Management and updating of consumer databases
 - Management of electronic payment system
 - Establishment of interconnections between the site and the Commercial Department at the level of logistics and billing
 - Collection and treatment of data for consumer support
4. Promote the dissemination of the technological culture of the company
5. Maintain a proactive attitude, supported by ongoing diagnosis and observation of markets and technological evolution
6. Manage an E-Commerce project

Functions

The Technician in E-Commerce will act as

- Link between the company manager and the electronic function of the company
- Liaison with service suppliers in the area of E-Commerce, carrying out "key account" functions or as a member of project teams.
- Co-ordinator of pluridisciplinary strategic teams:
 - Interpreting strategy and applying it to technologies
 - Providing technological strategies to management
 - Collaborating as an adviser on the technological positioning of the company
- Promoter of E-Commerce

Entry requirements

Professional courses at level III of EU Area 1
 General Training Courses Group II
 A knowledge of English
 A knowledge of IT

SUMMARY OF UNITS

<i>Unit title</i>	<i>Hours per year</i>	<i>Hours per week</i>
a) Socio-cultural training		
1. Health and Safety at Work	60	1.5
2. English	100	3.0
3. The New Economy	140	3.0
Subtotal	300	37.5
b) Scientific-technological training		
4. Digital marketing	180	4.5
5. Net-Merchandising	160	4.0
6. New Marketing Tools	160	4.0
7. Information Technologies	300	7.5
8. Supply and Logistics	100	2.5
Subtotal	900	22.5
9. Work Experience	400	40.0
Total hours	1600	

DESCRIPTION OF UNITS

UNIT 1: Health and Safety at work

Description: This unit is designed to develop attitudes and behaviour conducive to the prevention of health risks and the promotion of quality of life at work.

Module I: Framework (20 hours)

Outcomes:

- To identify of the rights and obligations of employers and employees
- To relate health and safety at work to management indicators
- To understand the National System of Professional Risk Prevention

Module II: Risks and Prevention (40 hours)

Outcomes:

- To understand the organisation and working of safety, hygiene and health services in the work place
- To understand the minimum health and safety rules applying to the workplace and work equipment
- To understand the principal risks and prevention strategies applying to the work environment
- To understand the principal risks and prevention strategies applying to jobs and operations
- To identify natural ergonomic and psycho-social risk factors
- To acquire knowledge of methods and procedures to be used in emergency situations

UNIT 2: ENGLISH

Description: This unit enables students to acquire specific vocabulary

Module I: The Information Society (25 hours)

Outcomes

- To develop abilities within the four language skills
- To acquire/expand vocabulary related to the topic
- To understand and practice the appropriate language for talking about the Information Society
- To develop the group working spirit
- To develop a sense of tolerance

Module II: Communication skills for Business (25 hours)

Outcomes:

- To develop abilities within the four language skills
- To acquire/expand vocabulary related to the topic
- To understand and practice the appropriate language for Business Communication

Module III: Business/E-Commerce (25 hours)

Outcomes:

- To develop abilities within the four language skills
- To acquire/expand vocabulary related with the topic
- To understand and practice the appropriate language for E-Commerce

Module IV: Virtual Shopping (25 hours)

Outcomes:

- To develop abilities within the four language skills
- To acquire/expand vocabulary related with the topic
- To understand and practice the appropriate language for virtual shopping

UNIT 3: THE NEW ECONOMY

Description: This unit provides a reference framework which permits a better understanding of the advantages and consequences of the electronic market

Module I: The Information Society (25 hours)

Outcomes:

- To interpret the impact of the Information Society

Module II: Current world-wide development and growth (25 hours)

Outcomes:

- To understand the impact of economic development and growth

Module III: Universalisation, regionalisation and globalisation (25 hours)

Outcomes:

- To understand the impact of universalisation, regionalisation and globalisation in the economy



Module IV: Some current problems (25 hours)

Outcomes

- To discuss some current problems from an intervention perspective

UNIT 4: DIGITAL MARKETING

Description: This unit provides an understanding of the internet as a new medium of communication and negotiation.

Module I: The internet as a marketing tool (30 hours)

Outcomes:

- To identify the potential of the internet as a medium of communication
- To identify strategies for Institutional communication on-line
- To identify strategies for commercial communication on-line
- To identify the potential of the internet as a negotiation tool

Module II: Marketing strategies on-line (30 hours)

Outcomes:

- To identify and differentiate between "interruption" and permission strategies
- To define the concept of viral marketing and the situations in which it applies
- To define one-to one marketing strategies and their importance in creating consumer loyalty
- To construct a marketing plan

Module III.: E-Commerce (30 hours)

Outcomes:

- To identify and define different types of virtual shop
- To understand the importance of site location
- To identify and define different strategies for utilisation in the virtual shop
- To identify the importance of services in creating customer loyalty
- To identify the importance of service in electronic commerce and the define tools to offset the absence of physical service.

UNIT 5: NET-MERCHANDISING

Description: This unit enables students to understand the importance of cognitive/sensory elements in on-line merchandising

Module 1: Layout on-line (40 hours)

Outcomes:

- To understand the importance of the home page of the site as a calling card
- To define the structure of a site according to consumer profile
- To identify relevant contents and location
- To understand the importance of images in marketing stock

Module II: Cognitive/sensory elements (65 hours)

Outcomes:

- To understand the importance of these elements in consumers' perceptual map
- To identify the different colour associations made by consumers
- To define the different shapes to use according to the target consumer.
- To identify the importance of sounds in creating consumer loyalty
- To define the different types of language used according to target public

Module III: Commercial impact and promotion (65 hours)

Outcomes

- To identify the different tools for commercial impact on-line at the level of shop and product
- To identify the different tools of commercial promotion on-line at the level of shop and product

UNIT 6: NEW MARKETING TOOLS

Description: This unit provides an understanding of the importance of databases in the segmentation of the market and management of customers

Module1: Database Marketing (55 hours)

Outcomes:

- To identify criteria of market segmentation
- To achieve market segmentation
- To use and understand databases as a facilitator for market segmentation

Module II: Electronic Data Interchange (40 hours)

Outcomes:

- To acquire a knowledge of the origins of EDI
- To identify the importance of EDI in relationships with suppliers and clients

Module III WAP (65 hours)

Outcomes:

- To identify and define consumer type
- To identify and define strategies for mobile communication
- To define and recognise design solutions for WAP
- To identify the implications and tendencies of internet access by mobile communication

UNIT 7: INFORMATION TECHNOLOGIES

Description: This unit enables students to understand the criteria for definition and administration of websites and e-mail in E-Commerce.

Module 1. Internet (30 hours)

Outcomes:

- To understand the technological evolution of the internet
- To be able to substantiate strategic choices in E-Commerce
- To know how to use e-mail

Module II: Creation of web-pages (60 hours)

Outcomes:

- To understand the language of HTML
- To gain knowledge of editing software for HTML documents
- To understand some of the programming languages:

Module III: Electronic catalogues (50 hours)

- To know how to plan a catalogue site
- To understand databases used in commercial sites

Module IV: E-Commerce via the Internet (60 hours)

- To provide bases for the planning of an E-Commerce site
- To understand some of the most interesting resources
- To set up an E-Commerce site

Module V: Technologies and systems for E-Commerce (40 hours)

- To understand the most used hardware and software models in E-Commerce sites

Module VI: Security systems (30 hours)

- To gain knowledge of the principal methods of site protection and security
- To gain knowledge of the principal forms of payment and their respective security systems

UNIT 8: SUPPLY AND LOGISTICS

Description: This unit provides an understanding of business logistics and its impact in the management of companies and enables students to understand the different tools of logistic management and their particular application in the digital economy

Module I: The foundations of logistics (20 hours)

Outcomes:

- To understand the concept of logistics, its activities and the fundamentals of integrated management

Module II: Management of Supplies (20 hours)

Outcomes

- To understand the logistic parameters of the management of the purchase of goods and other materials

Module III: Storage Management (20 hours)

Outcomes

- To understand the management of the movement and storage of goods

Module IV: Transport management (20 hours)

Outcomes

- To understand the management of different modes of transport and the parameters for their selection

Module V: Management of logistical information systems (20 hours)

Outcomes:

- To understand the role of logistics in the management of digital commerce

UNIT 9: WORK PLACEMENT (400 hours)

Description: This unit brings students into contact with organisations in the field of E-Commerce and enables them to carry out activities in the field of E-Commerce

Outcomes:

- To gain work experience of in a real situation, applying knowledge acquired in college
- To gain an understanding of the company as an organised centre of activities linked to E-Commerce, respecting punctuality and discipline at work.
- To gain experience of being part of a team, and the importance of human relations.



APPENDIX THREE

This appendix includes the original research and development undertaken by Escola de Comércio de Lisboa. It was subsequently translated and used in the comparison document for E-Commerce.

ÍNDICE

1	- SECTOR DO COMÉRCIO	
1.1	- BREVE CARACTERIZAÇÃO	2
1.2	- FACTORES DE EVOLUÇÃO DOS EMPREGOS	3
1.3	- COMPETÊNCIAS PESSOAIS E PROFISSIONAIS	4
1.4	- NECESSIDADES DE FORMAÇÃO / PROPOSTAS DE CURSOS DE ESPECIALIZAÇÃO TECNOLÓGICA	5
2	- PERFIL PROFISSIONAL	6
2.1	- REFERENCIAL DE EMPREGO	6
2.2	- REFERENCIAL DE PROFISSÃO	7
3	- PLANO DE ESTUDO	9
4	- ELENÇOS MODULARES POR DISCIPLINA	10
4.1	- SEGURANÇA E SAÚDE NO TRABALHO	10
4.2	- NOVA ECONOMIA	11
4.3	- INGLÊS	12
4.4	- TECNOLOGIAS DA INFORMAÇÃO	13
4.5	- MARKETING DIGITAL	18
4.6	- NET-MERCHANDISING	19
4.7	- NOVOS INSTRUMENTOS DE MARKETING	20
4.8	- APROVISIONAMENTO E LOGÍSTICA	21
4.9	- ESTÁGIO	23
5	- AVALIAÇÃO	24

1 - SECTOR DO COMÉRCIO

1.1 - BREVE CARACTERIZAÇÃO

O sector do Comércio e Serviços constitui um importante sector da economia comunitária e nacional e uma importante fonte de emprego e de oportunidades profissionais para a população em geral. O comércio por grosso do Espaço Económico Europeu é composto por quase 1 milhão de empresas que empregam cerca de 6,5 milhões de pessoa. O comércio a retalho é levado a cabo por perto de 3,5 milhões de empresas que empregam 15,3 milhões de pessoas.

Para além do impacto económico, o comércio é um sector socialmente muito importante: no comércio europeu três em cada quatro empresários são retalhistas e dois em cada três dos activos trabalham no comércio a retalho.

O processo de modernização do comércio europeu passou por um processo de associação e de integração de empresas, dando-lhes uma dimensão que lhes permitiu introduzir regras de actuação geradoras de grande eficácia. Em Portugal esse processo teve efeitos muito limitados, embora, nos últimos anos se tenha sentido uma profunda modificação tanto no sector alimentar como no não alimentar. O aparecimento de grandes superfícies e a implantação de cadeias estrangeiras especializadas, sobretudo sob a forma de franchising, contribuíram para diversificar a oferta e suscitaram um onde de modernização. No anos mais recentes assistimos ao lançamento da venda por correspondência e do comércio electrónico.

De acordo com o estudo realizado pelo INOFOR, apresentado em Março de 2001 sobre "Comércio e Distribuição em Portugal" – Evolução das qualificações e diagnóstico das necessidades de formação, as perspectivas de evolução do comércio português e europeu apontam para:

- Preocupação crescente, por parte das empresas comerciais na área do marketing, para aprofundar o conhecimento do cliente;
- Crescente valorização da componente serviço;
- Reforço dos valores da proximidade comodidade, qualidade e serviço;
- Reforço do acto de compra como um acto de lazer e de prazer, como um acto lúdico;
- Movimento de integração do comércio em espaços mais alargados (ex: espaços verdes, parques de divertimentos e de restauração);
- Crescimento do comércio de marcas;
- Crescimento do hard discount;
- Expansão dos supermercados de média dimensão;
- Expansão das grandes superfícies especializadas;
- Adaptação rigorosa dos circuitos comerciais às preocupações com a segurança e saúde das pessoas;

- Desenvolvimento do processo de concentração empresarial (fusão, aquisição e integração);
- Expansão das empresas comerciais para fora da Europa;
- Crescente utilização das novas tecnologias;
- Actividade logística cada vez mais desenvolvida;
- Cooperação entre produtores e distribuidores.

De acordo com este estudo, o volume do emprego tem registado crescimento, principalmente ao nível das empresas retalhistas. Trata-se também de um sector onde o peso dos jovens é significativo, constituindo-se como importante porta de entrada no mercado de trabalho. Do ponto de vista das habilitações os trabalhadores do comércio apresentam sérias debilidades (2,7% dos trabalhadores do retalho possuem bacharelato/licenciatura e 27,5% destes têm apenas a 4ª classe). O nível habilitacional dos empresários do comércio também é baixo (em 1997 cerca de 57% tinha apenas seis ou menos anos de escolaridade e 9% licenciatura ou bacharelato).

1.2 - FACTORES DE EVOLUÇÃO DOS EMPREGOS

De acordo com o referido Estudo, nos últimos anos têm ocorrido fortes alterações decorrentes essencialmente de:

Entrada em Portugal de grandes cadeias estrangeiras e multinacionais, com forte impacto ao nível do aumento da competitividade, e no ritmo de introdução de novas técnicas e tecnologias;

Processo de forte concentração, sobretudo na área dos bens correntes de grande consumo, que se tem manifestado quer a nível do retalho quer a nível do aprovisionamento.

A evolução empresarial tem vindo a fazer desaparecer alguns postos de trabalho em pequenas empresas nas áreas do atendimento ao balcão, das compras e do armazém mas, em contrapartida, vem tornar a função compras e a logística muito mais complexas em termos de gestão e exigentes em competências.

Assim, as empresas portuguesas têm sido pressionadas com grandes mutações e exigências acrescidas nas áreas do Marketing/Merchandising, da Logística, das Compras, das Vendas e da Qualidade, aproveitando a forte evolução da Informática e dos Sistemas de Informação e Comunicação. Esta evolução repercutir-se-á no volume e na qualidade do emprego, manifestando-se:

- Potencial crescimento generalizado do volume de emprego no sector resultante da dinamização da actividade comercial;
- Aumento generalizado do emprego mais qualificado, sobretudo nas áreas da gestão e do marketing;
- Maior profissionalização da gestão de topo e intermédia;
- Crescimento do emprego na área da logística devido à concentração da oferta, centralização das compras, pressões para a optimização de custos e para a melhoria do serviço ao cliente, importância crescente no comércio tradicional e no comércio electrónico, desenvolvimento de estratégias de associativismo empresarial;
- Crescimento do emprego nas áreas do merchandising e do vitrinismo, devido à aposta crescente das empresas num ambiente de loja que proporcione aos consumidores um acto de compra como um acto de lazer, que faz crescer a importância destas áreas nas grandes superfícies, no comércio tradicional e nas empresas prestadoras de serviços de merchandising;
- Emergência de empregos para a gestão e animação dos centros de comércio urbanos e centros comerciais;
- Maior mobilidade internacional dos quadros portugueses, principalmente nas áreas da gestão, compras e marketing, devido à internacionalização das empresas e as suas crescentes parcerias internacionais;
- Peso considerável do emprego ao nível dos quadros de nacionalidade estrangeira, devido à crescente penetração de cadeias estrangeiras;

1.3 - COMPETÊNCIAS PESSOAIS E PROFISSIONAIS

Esta evolução terá repercussões nas competências pessoais e profissionais, nomeadamente no reforço e desenvolvimento nas áreas:

- do Marketing;
- da Logística (responsável técnico e técnico de logística), tendo em conta a difusão das TIC como suporte à integração da cadeia de distribuição e o crescimento do comércio electrónico;
- do Merchandising (Merchandiser) e do Vitrinismo (Vitrinista), em termos de concepção de um layout da loja e da exposição dos produtos que rentabilize ao máximo os espaços e que responda às necessidades dos clientes;
- associadas ao emprego de animador do comércio, nomeadamente na criação de actividades de animação de espaços comerciais que proporcionem um ambiente convidativo à compra, tendo em conta o público-alvo e o tipo/formato de loja;
- das compras, derivado das estratégias de expansão desenvolvidas pelas empresas comerciais que implicam uma crescente centralização das compras;

- das vendas, principalmente as que se relacionam com a função atendimento: conhecimentos profundos dos produtos e a sua utilização, técnicas de relacionamento com o cliente, capacidade de adaptação e de criação de mecanismos de empatia com o cliente, manutenção do merchandising da loja;

De uma forma generalizada, para todos os profissionais da empresa surgem exigências acrescidas ao nível das competências:

- sociais e relacionais: comunicar com os outros, trabalhar em equipa, criar mecanismos de empatia com o cliente;
- de utilização de tecnologias de informação e comunicação, uma vez que assistimos a uma generalizada disseminação das TIC nos pontos de venda, mas também à sua utilização como ferramenta de gestão da empresa;
- no domínio de línguas estrangeiras.

1.4 - NECESSIDADES DE FORMAÇÃO / PROPOSTAS DE CURSOS DE ESPECIALIZAÇÃO TECNOLÓGICA

Revela-se assim necessário reforçar a formação de técnicos qualificados a vários níveis, tendo em conta a evolução actual e possível das empresas deste sector e dos perfis profissionais requeridos, nomeadamente:

O potencial de crescimento do comércio electrónico e da utilização da Internet na gestão comercial e na venda, conduzirão à necessária adaptação e ao desenvolvimento de competências especializadas nesta nova forma de comunicar e de comercializar. Ao nível do marketing serão determinantes as competências para a elaboração e manutenção de um site (formas de navegação no site, apresentação de produtos, formas de gestão da compra e de incentivos ao consumidor, definição de estratégias de confiança, formas de estudo e de ligação mais estreita com o consumidor), em colaboração estreita com outras esferas profissionais (web designers, redactores, programadores informáticos, gestores de rede). Ao nível da e-logística, as competências de gestão dos fluxos serão fundamentais na garantia da qualidade do serviço, de resposta rápida e de redução dos custos, nomeadamente entre a venda on-line e a entrega do produto ao cliente.

2 - PERFIL PROFISSIONAL

2.1 - REFERENCIAL DE EMPREGO

DESIGNAÇÃO

Técnico Especialista em Comércio Electrónico.

FINALIDADES

No final do curso o Técnico de Comércio Electrónico será capaz de:

- Dar corpo tecnológico ao posicionamento estratégico da Empresa, ao nível da definição de:
 - Definição do tipo de site;
 - Definição das áreas de negócio a abranger;
 - Estabelecimento do tipo de produtos / serviços a vender ou publicitar (em colaboração com Dep. Comercial);
 - Fornecimento de elementos para a constituição do preço e da estratégia comercial electrónica;
 - Fornecimento de informação das capacidades tecnológicas para a implementação de estratégias de net-marketing (em colaboração com o Dep. De Marketing).
- Gerir o site da Empresa:
 - Ter em consideração o enquadramento e condicionantes jurídicas e sócio-culturais.
 - Promover e implementar políticas de segurança.
 - Adequar o lay-out do site;
 - Posicionamento da empresa;
 - Políticas de marketing e comerciais;
 - Necessidades do consumidor;

envolvendo a capacidade de modificar o design gráfico ou explicitar as necessidades de modificação a terceiros.

 - Gestão e actualização de bases de dados de produtos e serviços;
 - Gestão e actualização de bases de dados de consumidores;
 - Gerir o sistema de pagamento electrónico;
 - Fazer a interligação entre o site e o Dep. Comercial, ao nível da logística e da facturação;
 - Recolha e tratamento de dados para o serviço de apoio ao consumidor.
- Promover a disseminação de uma cultura tecnológica na empresa.
- Ter uma atitude proactiva apoiada em diagnóstico permanente, face à observação dos mercados e das evoluções tecnológicas.
- Gerir um projecto de Comércio Electrónico.

ÁREA FUNCIONAL

O Técnico de Comércio Electrónico desenvolverá a sua actividade como:

- Elemento de charneira entre o gestor da empresa e o funcionamento "electrónico" da mesma.
- Colaborador de empresas prestadoras de serviços na área do Comércio Electrónico, desempenhando funções do tipo "key account" ou membro de equipas de projecto.
- Integrar equipas pluridisciplinares de estratégia;
- Interpretando a estratégia e aplicando-lhe as tecnologias;
- Proporcionando estratégias tecnológicas à gestão;
- Colaborando como consultor para pensar o posicionamento tecnológico da empresa.
- Empresário / Promotor de projecto de comércio electrónico.

2.2 - REFERENCIAL DE PROFISSÃO

CONDIÇÕES DE ACESSO E/OU PRÉ-REQUISITOS

Cursos Profissionais de Nível III da E.U. da Área 1.

Cursos de Formação Geral do Agrupamento II.

Conhecimentos de Inglês.

Conhecimentos de Informática.

3 - PLANO DE ESTUDO

Disciplina / Componente	Carga horária anual
Segurança e Saúde no Trabalho	40
Nova Economia	90
Inglês	90
Formação Socio-cultural	220
Tecnologias da Informação	250
Marketing Digital	130
Net-Merchandising	110
Novos Instrumentos de Marketing	110
Aprovisionamento e Logística	60
Formação Científico-Tecnológica	660
Estágio	360
Formação em Contexto de Trabalho	360
TOTAL DE HORAS CURSO	1 240

4 - ELENÇOS MODULARES POR DISCIPLINA

4.1 - SEGURANÇA E SAÚDE NO TRABALHO

Carga Horária: 40h

Finalidade:

- Desenvolver atitudes e comportamentos de prevenção de riscos para a saúde, promovendo a qualidade de vida no trabalho.

Módulo I: Enquadramento

Carga Horária: 10h

Objectivos

- Identificar os direitos e deveres dos trabalhadores e empregadores.
- Relacionar a segurança e saúde no trabalho com os indicadores de gestão das empresas.
- Conhecer o Sistema Nacional de Prevenção de Riscos Profissionais.

Conteúdos

- Enquadramento jurídico da segurança e saúde no trabalho
 - obrigações do empregador
 - direitos dos trabalhadores
 - deveres dos trabalhadores
 - eleição dos representantes dos trabalhadores
- Índices de acidentes de trabalho e de doenças profissionais.
- Indicadores relativos a custos com acidentes, doenças e absentismo
- Custos e benefícios da prevenção de riscos profissionais
- Sistema Nacional de prevenção de Riscos Profissionais: objectivos, princípios gerais e elementos integradores

Módulo II: Riscos e Prevenção

Carga Horária: 30h

Objectivos

- Conhecer os princípios da organização e funcionamento dos serviços de segurança, higiene e saúde no trabalho.
- Conhecer as prescrições mínimas de segurança e saúde associadas aos locais e aos equipamentos de trabalho
- Conhecer os principais riscos e medidas de prevenção associados ao ambiente de trabalho.
- Conhecer os principais riscos e medidas de prevenção associados a tarefas e operações.
- Identificar os factores de riscos de natureza ergonómica e psicossocial.
- Conhecer os meios e procedimentos a utilizar em acções de emergência.

4.2 - NOVA ECONOMIA

Carga Horária: 90h

Finalidade:

- Fornecer um quadro de referência que permita uma melhor compreensão das vantagens e consequência do mercado electrónico.

Módulo I: Sociedade de Informação

Carga Horária: 20h

Objectivos

- Interpretar o impacto da Sociedade de Informação no Mundo Actual.

Conteúdos

- Meios de comunicação - formas e evolução
- Globalização social e cultural
- Sociedade da Informação / Sociedade do Conhecimento
- As relações sociais e a Web
 - O jogo na relação face a face
 - Relações sociais mediadas por computadores em rede
 - Conceito de comunidade e comunidades virtuais
 - Nova linguagem
 - Internet e novas relações de poder

Módulo II: Desenvolvimento e Crescimento no Mundo Actual

Carga Horária: 20h

Objectivos

- Compreender o impacto do Desenvolvimento e do Crescimento no economia.

Conteúdos

- Desigualdades no Mundo
- Factores determinantes do crescimento económico
 - Produtividade
 - Poupança e investimento
 - Educação
 - Capital intelectual
 - Conhecimentos tecnológicos
 - I & D (Investigação e Desenvolvimento)
- Do crescimento ao desenvolvimento
 - Desenvolvimento e direitos humanos

Módulo III: Mundialização, Regionalização e Globalização

Carga Horária: 25h

Objectivos

- Compreender o impacto da Mundialização, Regionalização e Globalização na economia.

Conteúdos

- Mundialização da Economia
- Regionalização económica do Mundo e a formação de blocos regionais
- A Globalização
 - Papel das ETN
 - Papel das TIC
 - Papel das organizações internacionais
 - A globalização económica e financeira

Módulo IV: Alguns Problemas da Actualidade

Carga Horária: 25h

Objectivos

- Discutir alguns dos problemas da actualidade numa perspectiva de intervenção.

Conteúdos

- Desafios da empresa no contexto da economia digital
 - O Comércio electrónico como estratégia para a empresa
 - Novas formas de gestão - e-Engenharia
 - Novas relações com os clientes - e-Commerce
 - Novas relações entre as empresas - B2B
 - Novas relações clientes finais/empresas - B2C
 - O Mercado electrónico
 - A situação do CE em Portugal
- Emprego no contexto da economia digital
 - A importância do capital intelectual
 - Novas qualificações profissionais
 - Os trabalhadores da informação e do conhecimento
 - Novos espaços de trabalho: Teletrabalho e trabalho em rede

4.3 – INGLÊS

Carga Horária: 90h

Finalidade:

- Adquirir vocabulário específico que permita domínio da escrita e actos de fala em Comércio Electrónico.

Módulo I: The Information Society

Carga Horária: 20h

Objectivos

- Develop their abilities within the four language skills.
- Acquire/expand vocabulary related with the topic.
- Understand and practice the appropriate exponents for talking about the Information Society.
- Develop group working spirit;
- Develop a sense of tolerance.

Conteúdos

- The European Union White Paper for the Information Society
- The Portuguese Green Paper for the Information Society

Módulo II: Communication Skills for Business

Carga Horária: 20h

Objectivos

- Develop their abilities within the four language skills.
- Acquire/expand vocabulary related with the topic.
- Understand and practice the appropriate exponents for Business Communication.

Conteúdos

- Business Writing in English
- Oral Business Techniques
- E-mail language

Módulo III: Business / E-Commerce

Carga Horária: 25h

Objectivos

- Develop their abilities within the four language skills.
- Acquire/expand vocabulary related with the topic.
- Understand and practice the appropriate language for e-commerce.

Conteúdos

- Business
- E-Commerce
- Technical vocabulary

Módulo IV: Virtual Shopping

Carga Horária: 25h

Objectivos

- Develop their abilities within the four language skills.
- Acquire/expand vocabulary related with the topic.
- Understand and practice the appropriate language for virtual shopping.

Conteúdos

- Different types of shops
- Technical vocabulary
- Clients and suppliers

4.4 - TECNOLOGIAS DA INFORMAÇÃO

Carga Horária: 250h

Finalidade:

- Compreender os critérios de definição e administração dos web sites e do correio electrónico no e-Commerce.

Módulo I: Internet

Carga Horária: 30h

Objectivos

- Compreender a evolução tecnológica da internet.
- Saber fundamentar as escolhas estratégicas a nível de e-Business.
- Saber utilizar o correio electrónico.

Conteúdos

- Evolução tecnológica
 - evolução e globalização; ISPs, WWW, multimedia, browsers, servidores e clientes, endereços IP, DNS, registos de domínios e endereços, IANA
 - tecnologias; abrangência, velocidade de disseminação e escala
 - TCP/IP - HTTP - HTTPS - FTP – Telnet
- Web sites
 - tipos de sites: brochuras, catálogos, marketing de imagem, sites informativos (montras virtuais), sites de venda directa (lojas virtuais)

- customização, definição de comunidades, marketing personalizado; organização de um site por classes de cliente, com acessos restritos por mecanismos de segurança e processos de login; interactividade; integração de idiomas; integração de dados, voz e imagens; dimensionamento da capacidade de armazenagem dos dados; definição das ferramentas de recuperação das informações e da interfuncionalidade das mesmas; itens culturais (positivos e negativos); padrões de navegação; formulários e questionários; informações transaccionais; intercâmbio de dados electrónicos (EDI); medições de desempenho, fidelização
- actualização, tempo de desenvolvimento, flexibilidade e integração com a empresa
- Correio electrónico (e-mail)
 - política de administração; sua adequação com a gestão electrónica da documentação; comunicação interna e externa; mailing lists; newsletters

Módulo II: Criação de Web Pages

Carga Horária: 50h

Objectivos

- Conhecer a linguagem HTML.
- Saber utilizar software de edição de documentos HTML.
- Conhecer algumas linguagens de programação.

Conteúdos

- A linguagem HTML
 - Tags
 - Atributos
 - Links:
 - mapas clicáveis
 - Imagens
 - jpeg e jpeg progressivo
 - gif e gif animado
 - gif entrelaçado
 - Tabelas
 - Formulários
 - Frames
 - Aplicações Java: JavaScript e applets
 - Multimédia
 - sons
 - vídeos
 - Publicação na web

- Software de criação e edição de web pages
 - Front Page 2000
 - Composer
- Java e outras linguagens de programação e formatação
 - Java
 - Outras linguagens (Delphi; Visual C++; C++ Builder; ASP; XML)

Módulo III: Catálogos Electrónicos

Carga Horária: 40h

Objectivos

- Saber planear um site de Catálogo.
- Conhecer bases de dados usadas em sites comerciais.

Conteúdos

- Características funcionais
 - interactividade; actualização dinâmica; hipertextualidade; alcance global; definição de estratégias
 - conteúdo e apresentação; integração com base de dados
 - serviços computacionais
 - critérios de pesquisa
 - processamento de pagamentos on-line
 - download
 - chat
 - som e vídeo
 - rastreamento
 - informações sobre os visitantes
 - alteração do conteúdo consoante as características do visitante
- Tecnologias
 - DTD (Document type definition); RDF (Resource Description Framework); DOM (Document Object Model); ASP (Active Server Pages) - páginas activas de servidor, WAP
 - linguagens de formatação
 - HTML (Hypertext Markup Language)
 - XML (Extensible Markup Language)
 - XSL (Extensible Style Language)
 - linguagens de programação
- Java e JavaScript
- Bases de dados integradas e software de back-office
 - Oracle; MS-SQL Server; Interbase

Módulo IV: Comércio Electrónico Via Internet

Carga Horária: 50h

Objectivos

- Fornecer bases para o planeamento de um site de e-Commerce.
- Conhecer alguns dos recursos mais interessantes.
- Conseguir implementar um site de e-Commerce.

Conteúdos

- Formas e áreas de actividade
 - Business to consumer; Business to business; Business to many; Consumer to consumer; áreas de actividade e estratégias de atracção e de comunicação, exigências dos consumidores
- Novas tecnologias e recursos
 - One-to-one marketing
 - "Build to order" e "Mass customization"
 - "Customer care"
- emissão inteligente de e-mails
 - "Supply chain integration" (integração da cadeia de fornecimento)
 - Produção "just in time" e diminuição dos níveis de stocks
 - software de ERP (Enterprise Resource Planning)
 - Agentes e regras de negócio
 - Servidores Web com conteúdo dinâmico
 - "Domino" (Lotus)
 - Aplicações "Java Server-Side"
 - Modelo "Thin client"
- Implementação
 - Lay-out das interfaces com o consumidor; Divulgação; Medição dos resultados
 - Funções
 - Promoções
 - Selecção dinâmica de itens
 - Controlo da oferta de itens
 - Configuração

Módulo V: Tecnologias e Sistemas para Comércio Electrónico

Carga Horária: 50h

Objectivos

- Conhecer os modelos mais usados, de hardware e software, nos sites de comércio electrónico.

Conteúdos

- Padrões tecnológicos utilizados no mercado
 - de hardware
 - ISPs, POPs, backbone; servidores de web; servidores proxy; modems; redes digitais (RDIS); linhas dedicadas; routers
 - servidores próprios e alugados
 - de software
 - modelos de lojas virtuais; configuração de uma loja virtual
 - modelos "à medida", "chave na mão" e "centro comercial"
- Plataformas
 - Windows; Macintosh; Unix, Linux
- Software de redes locais (intranet) e de Internet
 - como trabalhar simultaneamente com a informação
 - qualidade/correção da informação
 - critérios e procedimentos
 - infra-estrutura da internet
 - software da gestão empresarial em sintonia com essa infra-estrutura
- Dispositivos digitais de acesso à Internet
 - palmtops
 - telefones celulares
 - televisores

Módulo VI: Sistemas de Segurança

Carga Horária: 30h

Objectivos

- Conhecer as principais medidas de protecção e segurança de um site comercial
- Conhecer as principais formas de pagamento e respectiva segurança

Conteúdos

- Segurança lógica e física
 - lógica:
 - controlo do acesso à informação
 - controlo da integridade da informação
 - física:
 - protecção dos sistemas de informação
 - segurança em redes locais; segurança em Internet
- Segurança nas transacções
 - parcerias entre as instituições financeiras

- certificação das soluções de segurança
- Formas de pagamento electrónico
 - sistemas tradicionais
 - cartões de crédito
 - novas formas
 - E-cash (dinheiro electrónico)
- Tecnologias
 - criptografia: vantagens e desvantagens
 - firewall: falhas que podem ocorrer
 - SET (Secure electronic transactions)
 - SSL (Secure Socket Layer)

4.5 - MARKETING DIGITAL

Carga Horária: 130h

Finalidade:

- Compreender a Internet como um novo meio de comunicação e negociação.

Módulo I: Internet como Instrumento do Marketing

Carga Horária: 40h

Objectivos

- Σ Identificar as potencialidades da internet como meio de comunicação.
- Σ Identificar e definir estratégias de comunicação Institucional on-line.
- Σ Identificar e definir estratégias de comunicação comercial on-line.
- Σ Identificar as potencialidades da internet como instrumento de negociação.

Conteúdos

- Instrumento de Comunicação
 - Comunicação Institucional
 - Comunicação Comercial
- Instrumento de Negócio
 - Business to business
 - Business to Consumer
 - Business to Public administration
 - Public administration to Consumer
 - Business to many
 - Consumer to consumer

Módulo II: Estratégias de Marketing on-line

Carga Horária: 40h

Objectivos

- Identificar e diferenciar as estratégias de "interrupção" e as estratégias de permissão.
- Definir o conceito de marketing viral e identificar as situações em que esta estratégia se aplica.
- Definir estratégias de marketing one-to-one e identificar a sua importância na fidelização dos consumidores
- Construir um plano de Marketing

Conteúdos

- Marketing de interrupção versus Marketing de permissão
 - Marketing viral
 - Marketing one-to-one
 - Estudos de mercado on-line
 - Plano de Marketing on-line

Módulo III: Internet como Instrumento do Marketing

Carga Horária: 50h

Objectivos

- Identificar as potencialidades da internet como meio de comunicação.
- Identificar e definir estratégias de comunicação Institucional on-line.
- Identificar e definir estratégias de comunicação comercial on-line.
- Identificar as potencialidades da internet como instrumento de negociação.

Conteúdos

- Instrumento de Comunicação
 - Comunicação Institucional
 - Comunicação Comercial
- Instrumento de Negócio
 - Business to business
 - Business to Consumer
 - Business to Public administration
 - Public administration to Consumer
 - Business to many
 - Consumer to consumer

4.6 - NET-MERCHANDISING

Carga Horária: 110h

Finalidade:

- Compreender a importância dos elementos cognitivos / sensoriais no merchandising on-line.

Módulo I: Layout on-line

Carga Horária: 20h

Objectivos

- Reconhecer a importância da página inicial de um site como cartão de visita da loja
- Definir a estrutura de um site de acordo com o perfil do consumidor
- Identificar os conteúdos relevantes e a sua localização
- Reconhecer a importância da imagem na divulgação do sortido.

Conteúdos

- Página inicial / montra virtual
- Estrutura do site
- Planificação das páginas
 - Organização dos conteúdos
 - Que conteúdos / onde?
- Ilustração do sortido / imagens

Módulo II: Elementos Cognitivos / Sensoriais

Carga Horária: 40h

Objectivos

- Reconhecer a importância destes elementos no mapa perceptual dos consumidores
- Identificar as diferentes associações efectuadas pelos consumidores relativamente às cores
- Definir as diferentes formas a utilizar de acordo com o consumidor – alvo
- Identificar a importância da utilização dos sons na fidelização do consumidor
- Definir os diferentes tipos de linguagem de acordo com o público alvo

Conteúdos

- Cor
- Forma
- Sons
- Linguagens

Módulo III: Animação e Promoção Comercial

Carga Horária: 50h

Objectivos

- Identificar os diferentes instrumentos de animação comercial on-line ao nível da loja e do produto
- Identificar os diferentes instrumentos de Promoção comercial on-line ao nível da loja e do produto

Conteúdos

- Animação comercial
 - Ao nível da loja
 - Ao nível do produto
- Promoção comercial
 - Ao nível da loja
 - Ao nível do produto

4.7 - NOVOS INSTRUMENTOS DE MARKETING

Carga Horária: 110h

Finalidade:

- Reconhecer a importância da utilização das bases de dados na segmentação de mercado e gestão de clientes.

Módulo I: Data Base Marketing

Carga Horária: 40h

Objectivos

- Identificar critérios de segmentação de mercado.
- Realizar segmentação de mercado.
- Utilizar e reconhecer as bases de dados como elemento facilitador da segmentação de mercado.

Conteúdos

- Segmentação de Mercado
 - Definição
 - Critérios
 - Segmentação
- Bases de dados



Módulo II: Electronic Data Interchange

Carga Horária: 20h

Objectivos

- Adquirir conhecimentos sobre a origem do EDI.
- Identificar a importância do EDI nas relações com fornecedores e com clientes.

Conteúdos

- Breve Historial do EDI
- O EDI como elemento facilitador das relações com fornecedores
- O EDI como elemento facilitador das relações com Clientes

Módulo III: WAP

Carga Horária: 50h

Objectivos

- Identificar e definir o consumidor – tipo.
- Identificar e definir estratégias ao nível das comunicações móveis.
- Definir e reconhecer soluções de design ao nível do WAP.
- Identificar as implicações e tendências do acesso à internet através das comunicações móveis.

Conteúdos

- Perfis do consumidor
- Estratégias
 - Posicionamento/diferenciação
 - Localização
 - Serviços
 - Fidelização
 - Oportunidades de negócio
- Wap design
 - Soluções em design
 - Conteúdos
- Portais móveis
- Tendências e Implicações

48 – APROVISIONAMENTO E LOGÍSTICA

Carga Horária: 60h

Finalidade:

- Perceber a Logística empresarial e o seu impacto na gestão das empresas.
- Compreender os diferentes instrumentos de gestão logística e a sua particular aplicação na economia digital.

Módulo I: Fundamentos de Logística

Carga Horária: 10h

Objectivos

- Conhecer o conceito de Logística, as suas actividades e os fundamentos da sua gestão integrada.

Conteúdos

- Introdução à Logística
- Conceito de Logística Integrada
- Actividades Logística
- Ambito Empresarial da Logística
- Gestão Integrada na Economia Digital: características particulares
- Integração do Fluxo Informacional
- Integração do Fluxo Físico

Módulo II: Gestão dos Aprovisionamentos

Carga Horária: 10h

Objectivos

- Conhecer os parâmetros logísticos para a gestão das compras de mercadorias e outros materiais.

Conteúdos

- Gestão da Compra
- Incoterms e Compra Internacional
- Procurement e e-procurement
- Critérios de Selecção e de Qualificação de Fornecedores

Módulo III: Gestão da Armazenagem

Carga Horária: 10h

Objectivos

- Conhecer a actividade de movimentação e armazenagem de produtos.

Conteúdos

- Localização de Infra-estruturas de Armazenagem (Modelo Gravítico)
- Dimensionamento de Infra-estruturas de Suporte ao Comércio Electrónico
- Organização e Definição de Lay-out
- Gestão e Organização do Ciclo de Encomenda
 - Recepção e Conferência
 - Arrumação
 - Preparação de Encomendas
- Equipamento de Armazenagem e Movimentação de Mercadorias

Módulo IV: Gestão de Transportes

Carga Horária: 10h

Objectivos

- Conhecer os diferentes modos de transporte e os parâmetros de selecção dos mesmos.

Conteúdos

- Modos de Transportes: rodoviário, ferroviário, marítimo e aéreo
- Selecção de Modos de Transporte
- Dimensionamento da Frota e Opção de Externalização
- Definição de Rotas e Consolidação de Cargas (caso particular das Start Ups)

Módulo V: Gestão dos Sistemas de Informação Logísticos

Carga Horária: 20h

Objectivos

- Perceber o papel da Logística na gestão do comércio de base digital.

Conteúdos

- Gestão da Previsão de Vendas
- Sistemas de Gestão de Armazenagem
- Sistemas de Gestão do Transporte
- ERP's

4.9 – ESTÁGIO

Carga Horária: 360h

Finalidade:

- Contactar com organizações de sector da Comércio Electrónico.
- Realizar actividades no sector da Comércio Electrónico.

Objectivos:

- Aprender a trabalhar em situação real, aplicando os conhecimentos adquiridos na escola.
- Descobrir a empresa como local organizado de actividades ligadas ao Comércio Electrónico, respeitando a pontualidade e disciplina no trabalho.
- Inserir-se numa equipa de trabalho, onde se poderá perceber a importância das relações humanas.

5 - AVALIAÇÃO

A avaliação de aprendizagens será realizada ao longo do ano lectivo pelos professores em cada disciplina, conforme o plano curricular proposto para a mesma. A avaliação final do curso contemplará a obtenção mínima de uma média ponderada de 10 valores às disciplinas da componente sócio-cultural e um nível mínimo de 10 valores a todas as disciplinas da componente científico-tecnológica. A avaliação do estágio deverá ser efectuada pelo responsável na empresa e pelo professor acompanhante do aluno, não podendo esta ser inferior a 10 valores.

A classificação final do curso é obtida pela aplicação da seguinte fórmula:

$$CF = \frac{2 \times [(CFSC + 2 \times CFCT) / 3] + CFCTb}{3}$$

onde:

CF – constitui a classificação final

CFSC – constitui a classificação da componente sócio-cultural;

CFCT – constitui a classificação da componente científico-tecnológica;

CFCTb – constitui a classificação da formação em contexto de trabalho.

Para a obtenção do DET (Diploma de Especialização Tecnológica), o aluno poderá desenvolver um projecto, com monitorização dos professores, a ser apreciada por um júri tripartido, conforme exigido pelo Sistema Nacional de

Certificação Profissional. A avaliação proferida pelo júri não poderá ser inferior a 10 valores.

PROVA DE APTIDÃO FINAL

I - OBJECTIVOS

O objectivo deste projecto é avaliar os conhecimentos adquiridos no decorrer do curso, aplicados a uma situação concreta.

- Realizar um projecto de implementação de um Web Site;
- Apresentar oralmente um projecto de forma inovadora e defendê-lo perante um júri.

II – PROCEDIMENTOS

O formando deverá ter em conta os seguintes aspectos:

- O projecto será desenvolvido nas diversas disciplinas
- A data limite para entrega das diversas partes do projecto será definida pelos formadores acompanhantes do projecto, no âmbito das disciplinas envolvidas no início de cada ano lectivo.
- A data limite para entrega do projecto é definida anualmente.
- O projecto deverá ser entregue no Secretariado da Escola, com cinco exemplares juntamente com o comprovativo passado pelo formador acompanhante. O Funcionário do Secretariado assinalará no respectivo livro a data da sua entrega e o aluno deverá, por sua vez, rubricá-lo.
- Quando não cumprido o prazo estipulado a entrega do projecto dependerá da decisão da Direcção Pedagógica.

II - CRITÉRIOS DE AVALIAÇÃO

1. Projecto

Os critérios de avaliação do projecto prendem-se com a capacidade de investigar elementos pertinentes para o mesmo e propor estratégias coerentes com o tipo de projecto em análise.

Os critérios de avaliação serão discutidos pelos formadores das diferentes disciplinas envolvidas no projecto e os formandos.

2. Prova de Aptidão Final

Após o formando concluir todos os módulos do seu curso ficará em condições de, entregando o seu projecto, submeter-se à Prova de Aptidão Final.

No dia e hora agendados terá de apresentar o projecto perante um júri constituído por um mínimo de três e um máximo de cinco elementos que são:

- Director Pedagógico da Escola, que preside;

- Formador Acompanhante do Projecto;
- Empresário Especialista na área

Após 15 minutos (no máximo) em que o formando irá apresentar o projecto, o júri colocará as questões que considerar pertinentes, às quais terá de responder de forma satisfatória.

Os critérios e ponderação para avaliação da Prova de Aptidão Final são:

Inovação (30 pontos)

- Originalidade do projecto;
- Originalidade do conceito;
- Contributo do projecto para a modernização do sector;

Rigor Científico (50 pontos)

- Respeito pelas grandes competências transversais à realização do projecto em curso
- Clareza;
- Documentação;
- Rigor Científico.

Exequibilidade (20 pontos)

- Adequação do projecto ao contexto sócio-económico em que se insere;
- Capacidade de mobilização dos recursos necessários.

Apresentação do Suporte Escrito (20 pontos)

- Qualidade gráfica;
- Estruturação e rigor ortográfico do texto;
- Clareza do discurso;
- "Cunho pessoal".

Apresentação Oral (50 pontos)

- Qualidade gráfica dos suportes utilizados;
- Suportes Inovadores;
- Criatividade;
- Clareza do discurso.

Defesa (30 pontos)

- Capacidade de argumentação;
- Utilização de uma linguagem técnica;
- Sentido crítico;

- Capacidade de aceitar críticas;
- Postura profissional.

AVALIAÇÃO

A avaliação é um aspecto fundamental de todo o processo de aprendizagem. Nela devem participar docentes e alunos, com um carácter essencialmente formativo.

A avaliação assume carácter predominantemente formativo, sistemático e contínuo, incidindo sobre:

- Conhecimentos.
- Transposição de conhecimentos.
- Capacidade de saber fazer.
- Responsabilidade.
- Capacidade de relacionamento.
- Espírito de iniciativa.
- Assiduidade.
- Pontualidade.

Como forma de melhorar o processo de aprendizagem deve-se privilegiar a auto e hetero-avaliação, pois não só se trata de avaliar o produto de aprendizagem, através da observação de mudanças comportamentais, mas também, as mudanças qualitativas, que entram no domínio das atitudes, dos valores, e das crenças.

As actividades independentes e os projectos realizados pelos alunos permitem-lhes, através da aquisição e do tratamento de informação, desenvolver capacidades intelectuais, tanto a partir de vivências individuais como de grupo. Por outro lado, as actividades escolares como as aulas ministradas pelo docente, a apresentação dos projectos à turma, o trabalho de campo, a presença e a partilha da experiência de empresários, desenvolvem nos alunos outro tipo de aquisições, de capacidades e de atitudes, como sejam o saber ouvir, o respeito pelo próximo.

Deve-se ter em conta que, num ensino diferenciado, a progressão do plano de estudos realiza-se mediante a consecução de aprendizagens significativas definidas para cada módulo e a avaliação deve ser perspectivada segundo uma referência criterial, isto é, segundo critérios previamente definidos e negociados entre docente e alunos.

A avaliação processa-se segundo duas modalidades:

- Formativa, de carácter sistemático e contínuo.
- Sumativa.

As modalidades de avaliação formativa e sumativa assumem funções distintas e realizam-se em momentos diversos.

A avaliação formativa visa sobretudo:

- Informar o aluno sobre a progressão dos resultados obtidos na aprendizagem, esclarecendo-o sobre as causas do seu sucesso ou insucesso e estabelecer estratégias de remediação.
- Estimular o aluno no seu desenvolvimento global.
- Certificar os saberes e competências adquiridas pelos alunos.

A avaliação sumativa realiza-se sempre que seja necessário fazer um balanço das aprendizagens desenvolvidas.

As funções da avaliação sumativa variam de acordo com os momentos em que esta se realiza:

- No decurso do processo de aprendizagem tem uma função formativa, uma vez que permite adequar o ensino às necessidades dos alunos.
- No final de cada módulo tem como função fundamental as decisões sobre reorientação do percurso escolar dos alunos.
- No final de cada disciplina ou área disciplinar fundamenta a certificação.
- No final do curso fundamenta a atribuição de um diploma.

A avaliação sumativa exprimirá uma interpretação, o mais rigorosa possível dos dados colhidos durante o processo de aprendizagem. No seu decorrer deverá proceder-se a uma observação continuada e posterior comunicação, não apenas das aquisições no domínio cognitivo, mas também das atitudes, das capacidades ou seja, da forma como se exprime o saber, o saber fazer, o saber ser, o saber tornar-se.

Nos Conselhos de Turma os docentes, além de atribuírem as avaliações formativas e quantitativas, devem analisar:

- A organização pedagógica dos espaços e dos tempos.
- As condições de realização das aprendizagens.
- As práticas docentes e discentes.
- Os reajustamentos a introduzir no processo de aprendizagem.

A avaliação sumativa, realizada módulo a módulo, permite traçar o perfil evolutivo da aprendizagem e propor para ratificação à Direcção Pedagógica as avaliações que foram lançadas em pauta e posteriormente afixadas.

This appendix includes the original research and development into Logistics undertaken by Escola de Comércio de Lisboa. It was subsequently translated and used in the comparison document for E-Commerce.

ÍNDICE

1 -	SECTOR DO COMÉRCIO	3
1.1 -	BREVE CARACTERIZAÇÃO	3
1.2 -	FACTORES DE EVOLUÇÃO DOS EMPREGOS	4
1.3 -	COMPETÊNCIAS PESSOAIS E PROFISSIONAIS	5
1.4 -	NECESSIDADES DE FORMAÇÃO / PROPOSTAS DE CURSOS DE ESPECIALIZAÇÃO TECNOLÓGICA	6
2 -	PERFIL PROFISSIONAL	7
2.1 -	REFERENCIAL DE EMPREGO	7
2.2 -	REFERENCIAL DE PROFISSÃO	8
3 -	PLANO DE ESTUDO	9
4 -	ELENCOS MODULARES POR DISCIPLINA	10
4.1 -	SEGURANÇA E SAÚDE NO TRABALHO	10
4.2 -	DESENVOLVIMENTO ECONÓMICO E SOCIAL	11
4.3 -	PLANEAMENTO E ORDENAMENTO DO TERRITÓRIO	12
4.4 -	GESTÃO COMERCIAL	13

1 - SECTOR DO COMÉRCIO

1.1 - BREVE CARACTERIZAÇÃO

O sector do Comércio e Serviços constitui um importante sector da economia comunitária e nacional e uma importante fonte de emprego e de oportunidades profissionais para a população em geral. O comércio por grosso do Espaço Económico Europeu é composto por quase 1 milhão de empresas que empregam cerca de 6,5 milhões de pessoa. O comércio a retalho é levado a cabo por perto de 3,5 milhões de empresas que empregam 15,3 milhões de pessoas.

Para além do impacto económico, o comércio é um sector socialmente muito importante: no comércio europeu três em cada quatro empresários são retalhistas e dois em cada três dos activos trabalham no comércio a retalho.

O processo de modernização do comércio europeu passou por um processo de associação e de integração de empresas, dando-lhes uma dimensão que lhes permitiu introduzir regras de actuação geradoras de grande eficácia. Em Portugal esse processo teve efeitos muito limitados, embora, nos últimos anos se tenha sentido uma profunda modificação tanto no sector alimentar como no não alimentar. O aparecimento de grandes superfícies e a implantação de cadeias estrangeiras especializadas, sobretudo sob a forma de franchising, contribuíram para diversificar a oferta e suscitaram um onde de modernização. No anos mais recentes assistimos ao lançamento da venda por correspondência e do comércio electrónico.

De acordo com o estudo realizado pelo INOFOR, apresentado em Março de 2001 sobre "Comércio e Distribuição em Portugal" – Evolução das qualificações e diagnóstico das necessidades de formação, as perspectivas de evolução do comércio português e europeu apontam para:

- Preocupação crescente, por parte das empresas comerciais na área do marketing, para aprofundar o conhecimento do cliente;
- Crescente valorização da componente serviço;
- Reforço dos valores da proximidade comodidade, qualidade e serviço;
- Reforço do acto de compra como um acto de lazer e de prazer, como um acto lúdico;
- Movimento de integração do comércio em espaços mais alargados (ex: espaços verdes, parques de divertimentos e de restauração);
- Crescimento do comércio de marcas;
- Crescimento do hard discount;
- Expansão dos supermercados de média dimensão;
- Expansão das grandes superfícies especializadas;

- Adaptação rigorosa dos circuitos comerciais às preocupações com a segurança e saúde das pessoas;
- Desenvolvimento do processo de concentração empresarial (fusão, aquisição e integração);
- Expansão das empresas comerciais para fora da Europa;
- Crescente utilização das novas tecnologias;
- Actividade logística cada vez mais desenvolvida;
- Cooperação entre produtores e distribuidores.

De acordo com este estudo, o volume do emprego tem registado crescimento, principalmente ao nível das empresas retalhistas. Trata-se também de um sector onde o peso dos jovens é significativo, constituindo-se como importante porta de entrada no mercado de trabalho. Do ponto de vista das habilitações os trabalhadores do comércio apresentam sérias debilidades (2,7% dos trabalhadores do retalho possuem bacharelato/licenciatura e 27,5% destes têm apenas a 4ª classe). O nível habilitacional dos empresários do comércio também é baixo (em 1997 cerca de 57% tinha apenas seis ou menos anos de escolaridade e 9% licenciatura ou bacharelato).

1.2 - FACTORES DE EVOLUÇÃO DOS EMPREGOS

De acordo com o referido Estudo, nos últimos anos têm ocorrido fortes alterações decorrentes essencialmente de:

Entrada em Portugal de grandes cadeias estrangeiras e multinacionais, com forte impacto ao nível do aumento da competitividade, e no ritmo de introdução de novas técnicas e tecnologias;

Processo de forte concentração, sobretudo na área dos bens correntes de grande consumo, que se tem manifestado quer a nível do retalho quer a nível do aprovisionamento.

A evolução empresarial tem vindo a fazer desaparecer alguns postos de trabalho em pequenas empresas nas áreas do atendimento ao balcão, das compras e do armazém mas, em contrapartida, vem tornar a função compras e a logística muito mais complexas em termos de gestão e exigentes em competências.

Assim, as empresas portuguesas têm sido pressionadas com grandes mutações e exigências acrescidas nas áreas do Marketing/Merchandising, da Logística, das Compras, das Vendas e da Qualidade, aproveitando a forte evolução da Informática e dos Sistemas de Informação e Comunicação.

Esta evolução repercutir-se-á no volume e na qualidade do emprego, manifestando-se:

- Potencial crescimento generalizado do volume de emprego no sector resultante da dinamização da actividade comercial;
- Aumento generalizado do emprego mais qualificado, sobretudo nas áreas da gestão e do marketing;
- Maior profissionalização da gestão de topo e intermédia;
- Crescimento do emprego na área da logística devido à concentração da oferta, centralização das compras, pressões para a optimização de custos e para a melhoria do serviço ao cliente, importância crescente no comércio tradicional e no comércio electrónico, desenvolvimento de estratégias de associativismo empresarial;
- Crescimento do emprego nas áreas do merchandising e do vitrinismo, devido à aposta crescente das empresas num ambiente de loja que proporcione aos consumidores um acto de compra como um acto de lazer, que faz crescer a importância destas áreas nas grandes superfícies, no comércio tradicional e nas empresas prestadoras de serviços de merchandising;
- Emergência de empregos para a gestão e animação dos centros de comércio urbanos e centros comerciais;
- Maior mobilidade internacional dos quadros portugueses, principalmente nas áreas da gestão, compras e marketing, devido à internacionalização das empresas e as suas crescentes parcerias internacionais;
- Peso considerável do emprego ao nível dos quadros de nacionalidade estrangeira, devido à crescente penetração de cadeias estrangeiras;

1.3 - COMPETÊNCIAS PESSOAIS E PROFISSIONAIS

Esta evolução terá repercussões nas competências pessoais e profissionais, nomeadamente no reforço e desenvolvimento nas áreas:

do Marketing;

- da Logística (responsável técnico e técnico de logística), tendo em conta a difusão das TIC como suporte à integração da cadeia de distribuição e o crescimento do comércio electrónico;
- do Merchandising (Merchandiser) e do Vitrinismo (Vitrinista), em termos de concepção de um layout da loja e da exposição dos produtos que rentabilize ao máximo os espaços e que responda às necessidades dos clientes;
- associadas ao emprego de animador do comércio, nomeadamente na criação de actividades de animação de espaços comerciais que proporcionem um ambiente convidativo à compra, tendo em conta o público-alvo e o tipo/formato de loja;

- das compras, derivado das estratégias de expansão desenvolvidas pelas empresas comerciais que implicam uma crescente centralização das compras;
- das vendas, principalmente as que se relacionam com a função atendimento: conhecimentos profundos dos produtos e a sua utilização, técnicas de relacionamento com o cliente, capacidade de adaptação e de criação de mecanismos de empatia com o cliente, manutenção do merchandising da loja;

De uma forma generalizada, para todos os profissionais da empresa surgem exigências acrescidas ao nível das competências:

- sociais e relacionais: comunicar com os outros, trabalhar em equipa, criar mecanismos de empatia com o cliente;
- de utilização de tecnologias de informação e comunicação, uma vez que assistimos a uma generalizada disseminação das TIC nos pontos de venda, mas também à sua utilização como ferramenta de gestão da empresa;
- no domínio de línguas estrangeiras.

1.4 - NECESSIDADES DE FORMAÇÃO / PROPOSTAS DE CURSOS DE ESPECIALIZAÇÃO TECNOLÓGICA

Revela-se assim necessário reforçar a formação de técnicos qualificados a vários níveis, tendo em conta a evolução actual e possível das empresas deste sector e dos perfis profissionais requeridos, nomeadamente:
Investimento em formação na área da Logística, procurando responder à tendência de centralização das compras, de crescente automatização dos armazéns e à importância da resposta rápida às necessidades dos clientes. As competências ao nível do planeamento, gestão e controlo da logística (gestão de stocks, gestão do armazém e gestão dos transportes) são cada vez mais estratégicas. A noção de qualidade e da regulamentação específica aos stocks e transportes de mercadorias, a utilização das tecnologias de informação e comunicação aplicadas às actividades de logística e a reactividade da gestão de fluxos às flutuações da procura e às necessidades específicas dos clientes, são domínios de conhecimento e de intervenção fundamentais. A formação inicial de Técnicos / Responsáveis de Logística e a formação contínua em domínios de logística, onde a necessidade de actualização é já visível, dado às rápidas mutações da actividade, em particular pela aplicação de novas tecnologias, é fundamental.

2 - PERFIL PROFISSIONAL

2.1 - REFERENCIAL DE EMPREGO

DESIGNAÇÃO

Curso de Especialização Tecnológica em Logística.

FINALIDADES

No final do curso o Técnico de Logística será capaz de actuar aos seguintes níveis:

- **SERVIÇO A CLIENTES:**
 - entender a satisfação total do cliente como questão central da logística empresarial;
 - diagnosticar as necessidades da operação logística do(s) cliente(s);
 - contribuir para a definição da operação logística do(s) cliente(s);
 - contribuir para a definição e aplicação dos parâmetros logísticos do serviço a clientes;
 - saber utilizar os sistemas de informação e comunicação com clientes.
- **GESTÃO OPERACIONAL DE FLUXOS:**
 - dimensionar o fluxo em unidades logísticas;
 - definir o "lay-out" da infra-estrutura logística adequada à operação;
 - conhecer e operacionalizar as actividades logísticas inerentes ao processo;
 - conhecer e utilizar os instrumentos de suporte à execução do processo logístico.
- **GESTÃO DE RECURSOS LOGÍSTICOS:**
 - conhecer e contribuir para a selecção de equipamentos de armazenagem e operação logística;
 - contribuir para a selecção de prestadores de serviços logísticos.

ÁREA FUNCIONAL

O Técnico de Logística desenvolverá a sua actividade como:

- Elemento da equipa de gestão e operação logística e do serviço a clientes, nomeadamente no exercício de funções de:
 - interface entre a empresa e o(s) clientes;
 - gestão operacional de fluxos e controlo de custos de operação logística (dedicada e não dedicada);
 - coordenação de equipas de operação logística.
- Colaborador de empresas de:
 - prestação de serviços logísticos;
 - produção;
 - distribuição e serviços.

2.2 - REFERENCIAL DE PROFISSÃO

CONDIÇÕES DE ACESSO E/OU PRÉ-REQUISITOS

Cursos Profissionais de Nível III da E.U. da Área 1.
 Cursos de Formação Geral do Agrupamento II.
 Conhecimentos de Estatística.
 Conhecimentos de Informática.

3 - PLANO DE ESTUDO

Disciplina / Componente	Carga horária anual
Segurança e Saúde no Trabalho	40
Desenvolvimento Económico e Social	90
Planeamento e Ordenamento do Território	90
Formação Sociocultural	220
Gestão Comercial	70
Serviço ao Cliente	80
Técnicas de Investigação Aplicada	100
Gestão da Operação e da Rede de Logística	230
Gestão da Qualidade Total	40
Informática Aplicada	140
Formação Científico-Tecnológica	660
Estágio	360
Formação em Contexto de Trabalho	360
TOTAL DE HORAS CURSO	1 240

4 - ELENÇOS MODULARES POR DISCIPLINA

4.1 - SEGURANÇA E SAÚDE NO TRABALHO

Carga Horária: 40h

Finalidade:

- Desenvolver atitudes e comportamentos de prevenção de riscos para a saúde, promovendo a qualidade de vida no trabalho.

Módulo I: Enquadramento

Carga Horária: 10h

Objectivos

- Identificar os direitos e deveres dos trabalhadores e empregadores.
- Relacionar a segurança e saúde no trabalho com os indicadores de gestão das empresas.
- Conhecer o Sistema Nacional de Prevenção de Riscos Profissionais.

Conteúdos

- Enquadramento jurídico da segurança e saúde no trabalho
 - obrigações do empregador
 - direitos dos trabalhadores
 - deveres dos trabalhadores
 - eleição dos representantes dos trabalhadores
- Índices de acidentes de trabalho e de doenças profissionais.
- Indicadores relativos a custos com acidentes, doenças e absentismo
- Custos e benefícios da prevenção de riscos profissionais
- Sistema Nacional de prevenção de Riscos Profissionais: objectivos, princípios gerais e elementos integradores

Módulo II: Riscos e Prevenção

Carga Horária: 30h

Objectivos

- Conhecer os princípios da organização e funcionamento dos serviços de segurança, higiene e saúde no trabalho.
- Conhecer as prescrições mínimas de segurança e saúde associadas aos locais e aos equipamentos de trabalho
- Conhecer os principais riscos e medidas de prevenção associados ao ambiente de trabalho.
- Conhecer os principais riscos e medidas de prevenção associados a tarefas e operações.
- Identificar os factores de riscos de natureza ergonómica e psicossocial.
- Conhecer os meios e procedimentos a utilizar em acções de emergência.



Conteúdos

- Organização e funcionamento dos serviços de segurança, higiene e saúde no trabalho
 - objectivos
 - modalidades organizativas
 - principais actividades
- Locais e postos de trabalho: riscos, medidas preventivas e de protecção, legislação aplicável
- Equipamentos de trabalho: riscos, medidas preventivas e de protecção, legislação aplicável
- Electricidade: riscos, medidas preventivas e de protecção, legislação aplicável
- Risco de incêndio e explosão: medidas preventivas e de protecção, legislação aplicável
- Controlo de exposição aos agentes físicos: ruído, ambiente térmico, iluminação
- Trabalho com ecrãs de visualização
- Operações de armazenagem
- Armazenagem, utilização e eliminação de produtos químicos perigosos
- Transporte mecânico de cargas
- Transporte manual de cargas
- Riscos associados à: carga física de trabalho, à carga mental de trabalho, à organização do tempo de trabalho
- Plano de emergência: meios e equipamentos necessários
- Procedimentos de emergência
- Sinalização de emergência
- Critérios de localização e manutenção de equipamentos de combate, de evacuação e de primeiros socorros

4.2 – DESENVOLVIMENTO ECONÓMICO E SOCIAL

Carga Horária: 90 h

Finalidade:

- Conhecer a realidade do Mundo Actual e ser capaz de perspectivar o desenvolvimento económico, social e tecnológico.

Módulo I: Desenvolvimento e Crescimento no Mundo Actual

Carga Horária: 30h

Objectivos

- Saber interpretar a realidade económica.

Conteúdos

- Desigualdades no mundo
- Factores determinantes do crescimento económico
 - Produtividade
 - Poupança e investimento
 - Educação
 - Capital intelectual
 - Conhecimentos tecnológicos
 - I & D
- Do crescimento ao desenvolvimento
- Desenvolvimento e Direitos Humanos

Módulo II: Mundialização, Regionalização e Globalização

Carga Horária: 30h

Objectivos

- Compreender os fenómenos que levam à Globalização

Conteúdos

- Mundialização da economia
- Regionalização económica do mundo e a formação de blocos regionais
- A globalização
- Papel das ETN
- Papel das TIC
- Papel das organizações internacionais
- Globalização económica e financeira

Módulo III: Alguns Problemas da Actualidade

Carga Horária: 30h

Objectivos

- Saber equacionar os grandes problemas do mundo actual.

Conteúdos

- Desafios da empresa no contexto da Nova Economia
 - Comércio Electrónico como estratégia para a empresa
 - Novas formas de gestão: e-Engenharia
 - Novas relações com os clientes: e-Commerce
 - Novas relações entre empresas: Business to Business
 - Mercado Electrónico
 - Situação do CE em Portugal
- Emprego no contexto da Nova Economia
 - Importância do capital intelectual
 - Novas qualificações profissionais
 - Trabalhadores da informação e do conhecimento
 - Novos espaços de trabalho: teletrabalho e trabalho em rede

4.3 – PLANEAMENTO E ORDENAMENTO DO TERRITÓRIO

Carga Horária: 90h

Finalidade:

- Conhecer e ser capaz de pensar o espaço e as suas interacções numa perspectiva de dinâmicas de futuro.

Módulo I: Planeamento Territorial

Carga Horária: 15h

Objectivos

- Saber interpretar os vários tipos de planos.
- Compreender a importância do planeamento para a solução de conflitos na gestão e uso do território.

Conteúdos

- Objectivos gerais do planeamento
- Vertentes do planeamento
- Escalas do planeamento
- Figuras do plano
- Instrumentos de planeamento
- Decisão política e estratégias de intervenção

Módulo II: Rede Urbana

Carga Horária: 25h

Objectivos

- Compreender a importância da rede urbana no ordenamento do território.

Conteúdos

- Hierarquia da rede urbana e localização dos aglomerados populacionais
- Espaço urbano, rural e litoral
- Localização dos aglomerados urbanos
- Hierarquia dos centros urbanos
- Rede urbana/Sistema urbano
- Contrastes no povoamento: vantagens e limitações da concentração e da dispersão
- Papel dos centros urbanos de média dimensão no atenuar dos desequilíbrios no sistema urbano
- Decisão política e estratégias de intervenção

Módulo III: Áreas Urbanas

Carga Horária: 20h

Objectivos

- Compreender a organização das áreas urbanas para o ordenamento do território.

Conteúdos

- Morfologia Interna e Áreas Funcionais
 - Forma e dimensão dos centros urbanos
 - Áreas funcionais
- Expansão urbana
 - Formação das áreas metropolitanas
 - Condições da vida urbana
 - Recuperação da qualidade de vida urbana
- Decisão política e estratégias de intervenção

Módulo IV: Transportes e Comunicações

Carga Horária: 30h

Objectivos

- Compreender os meios de transportes e de comunicações para o ordenamento do território.

Conteúdos

- Distribuição das redes de transportes e organização do espaço
 - Interacção espacial e a necessidade dos transportes e das comunicações
 - Distribuição das redes de transportes: marítimo, rodoviário, aéreo
 - Política geral de transportes
- Diferenciação espacial das redes de informação e comunicações
 - Redes de telecomunicações
 - Comunicação por via postal
 - Medidas a implementar no sector das comunicações
- Importância da tecnologia na melhoria das acessibilidades e na difusão da informação
 - Novas tecnologias nos transportes
 - Novas tecnologias na melhorias das telecomunicações
- Decisão política e estratégia de intervenção

4.4 – GESTÃO COMERCIAL

Carga Horária: 70h

Finalidade:

- Compreender as interacções entre a gestão comercial e a operação logística.

Módulo I: Estrutura, Dinâmica e Objectivos da Gestão Comercial

Carga Horária: 30h

Objectivos

- Compreender a organização e dinâmica da gestão comercial de uma empresa.

Conteúdos

- Eixos da acção comercial: carteira de clientes, estrutura física e organizativa, produtos, recursos humanos
- Interacção funcional
- Gestão dos recursos por objectivos

Módulo II: Gestão Comercial e Operação Logística

Carga Horária: 15h

Objectivos

- Compreender o interface entre a gestão comercial e a operação logística.

Conteúdos

- Interface entre a gestão comercial e a operação logística
- Eficiência e eficácia do processo (parâmetros logísticos)
- Custos logísticos e processo de formação do preço de prestação de serviços logísticos

Módulo III: Gestão Comercial e Prestação de Serviços Logísticos

Carga Horária: 25h

Objectivos

- Percepcionar os diferentes níveis de negociação.

Conteúdos

- Negociação
- Níveis de serviço

4.5 – SERVIÇO AO CLIENTE

Carga Horária: 80h

Finalidade:

- Desenvolver atitudes e comportamentos que coloquem o serviço ao cliente como aspecto fulcral da dinâmica do negócio.

Módulo I: Serviço ao Cliente: estratégia

Carga Horária: 15h

Objectivos

- Conhecer e medir os parâmetros logísticos do serviço a clientes.

Conteúdos

- Orientação para o Cliente
- Valor Acrescentado
- Gestão da relação com o Cliente

Módulo II: Parâmetros Logísticos do Serviço ao Cliente

Carga Horária: 20h

Objectivos

- Conhecer e aplicar instrumentos de controlo da operação logística.

Conteúdos

- Tempo
- Lugar
- Quantidade

Módulo III: Desenho da Operação Logística

Carga Horária: 45h

Objectivos

- Desenhar uma operação logística (própria ou de um cliente).

Conteúdos

- Estrutura física
- Pontos de Recepção
- Pontos de Entrega
- Características da Movimentação
- Dimensão e gestão dos Fluxos

4.6 – TÉCNICAS DE INVESTIGAÇÃO APLICADA

Carga Horária: 100h

Finalidade:

- Saber utilizar as técnicas de investigação aplicada à operação logística.

Módulo I: Introdução à Investigação Operacional

Carga Horária: 50h

Objectivos

- Conhecer o conceito de IO a sua aplicabilidade no contexto empresarial.

Conteúdos

- Aplicação nas Ciências Empresariais: Exemplos
- Tratamento Estatístico
- A Função Objectivo e as Restrições
- O Método Gráfico: Análise no Plano

Módulo II: O Problema de Transporte: Um Problema de Afectação

Carga Horária: 20h

Objectivos

- Conhecer o conceito de IO a sua aplicabilidade no contexto empresarial.

Conteúdos

- Matriz de Origens / Destinos
- Definição de coeficientes de Produtos/ Custo

Módulo III: As Redes

Carga Horária: 30h

Objectivos

- Conhecer a teoria das redes e sua aplicabilidade no planeamento de projectos.

Conteúdos

- Fundamentos de Redes ou Grafos
- Os Diferentes Tipos de Problemas de Redes: Exemplos
- A Rede de Projecto: O PERT e o CPM

4.7 – GESTÃO DA OPERAÇÃO E DA REDE LOGÍSTICA

Carga Horária: 230h

Finalidade:

- Ser capaz de intervir nas diferentes operações logísticas, favorecendo o bom funcionamento da rede logística.

Módulo I: Gestão dos Aprovisionamentos

Carga Horária: 20h

Objectivos

- Conhecer os parâmetros logísticos para a gestão das compras de mercadorias e outros materiais.

Conteúdos

- Gestão da Compra
- Incoterms e Compra Internacional
- Procurement
- Critérios de Selecção e Qualificação de Fornecedores

Módulo II: Gestão da Cadeia de Abastecimento

Carga Horária: 20h

Objectivos

- Conhecer a cadeia de abastecimento de forma a permitir uma gestão adequada.

Conteúdos

- Integração das Actividades Logísticas no Sistema de Valor
- Integração do Fluxo Informacional
- Integração do Fluxo Físico
- Gestão Física do Negócio Virtual – e_logistics
- Papel dos Operadores Logísticos

Módulo III: Gestão de Armazenagem

Carga Horária: 60h

Objectivos

- Conhecer a actividade de movimentação e armazenagem de produtos.

Conteúdos

- Localização de Infra-estruturas de Armazenagem (Modelo Gravítico)
- Dimensionamento de Infra-estruturas de Armazenagem
- Organização e Definição do Lay-out
- Gestão e Organização do Ciclo da Encomenda
- A Recepção e a Conferência
- A Arrumação
- A Preparação de Encomendas
- Equipamento de Armazenagem e Movimentação de Mercadorias

Módulo IV: Gestão de Transporte

Carga Horária: 50h

Objectivos

- Conhecer os diferentes modos de transporte e os parâmetros de selecção dos mesmos.

Conteúdos

- Modos de Transporte: Rodoviário, Ferroviário, Marítimo e Aéreo
- Selecção de Modo de Transporte
- Dimensionamento da Frota e Selecção de Viaturas
- Organização e Definição de Rotas

Módulo V: Planeamento e Gestão de Stocks

Carga Horária: 60h

Objectivos

- Conhecer, planear e gerir stocks.

Conteúdos

- Stocks para procura Dependente
- Stocks para Independente
- Stocks para Mista Input-Output
- Exploração de stock no Ciclo de Encomenda;
- Fiabilidade de Ciclo de Encomenda
- Nível de Serviço para determinada Janela de Entrega
- Efeito do Stock no Nível de Serviço
- Efeito do Stock na Estrutura de Capitais da Empresa
- Modelos de Quantidade fixa (Q) e de Período fixo (P) estocásticos
- Modelação DRP - e integração Q/DRP
- Modelação de Vendas e Adaptação do Stock à Procura
- Modelação Empírica e Dias de Cobertura
- Qualificação dos "Agentes" pelo Stock e Serviço
- Qualificação de Fornecedores pelo Stock e Serviço
- Planeamento de Capacidade (Stock Médio e Máximo)
- Efeito de Bullwhip e a sua Gestão na Cadeia de Abastecimento: Papel do Produtor
- Simulação de Gestão de Stocks na Cadeia de Abastecimento
- Inventariação de Stocks

Módulo VI: Gestão de Sistemas de Informação Logísticos

Carga Horária: 20h

Objectivos

- Conhecer e perceber o papel da Logística na gestão do comércio de base digital.

Conteúdos

- Gestão da Previsão de Vendas
- Sistemas de Gestão da Armazenagem
- Sistemas de Gestão do Transporte
- e-Business e e-Logística
- CRM e Logística

4.8 – GESTÃO DA QUALIDADE TOTAL

Carga Horária: 40h

Finalidade:

- Desenvolver uma atitude de gestão da Qualidade Total.

Módulo I: Introdução à Qualidade Total

Carga Horária: 10h

Objectivos

- Introduzir e aprofundar o conceito e a problemática da qualidade bem como as suas especificações.

Conteúdos

- Definição de Qualidade
- Funções da Qualidade
- Qualidade de Concepção / Conformidade / Serviços
- Prevenção dos Defeitos (materiais e humanos)
- Custos Ocultos da Qualidade
- Qualidade Total
- Gestão da Qualidade Total

Módulo II: Sistema de Gestão da Qualidade

Carga Horária: 10h

Objectivos

- Conhecer a gestão da qualidade total para poder intervir.

Conteúdos

- Gestão da Qualidade
- Sistema da Qualidade
- Objectivos do Sistema da Qualidade
- Orientações para formalizar o Sistema de Gestão da Qualidade

Módulo III: Gestão da Qualidade Total

Carga Horária: 10h

Objectivos

- Conhecer os processos da Gestão da Qualidade Total

Conteúdos

- Garantia da Qualidade
- Controlo da Qualidade
- Controlo do Processo
- Inspeção e Ensaio

Módulo IV: Certificação do Sistema de Gestão da Qualidade

Carga Horária: 10h

Objectivos

- Conhecer os objectivos e o processo da certificação

Conteúdos

- Objectivo da Certificação
 - Processo de Certificação

4.9 – INFORMÁTICA APLICADA

Carga Horária: 140h

Finalidade:

- Sensibilizar para a importância, cada vez maior, da informática na gestão das empresas.

Módulo I: Conceitos Básicos sobre Sistemas de Informação

Carga Horária: 20h

Objectivos

- Compreender os conceitos básicos sobre os sistemas de Informação.

Conteúdos

- Computadores e processamento de dados
- Entradas e saídas – dispositivos e acessos
- Representação de dados e instruções – linguagem de programação

Módulo II: SAPWN (Warehouse Management)

Carga Horária: 20h

Objectivos

- Saber utilizar a linguagem SAPWN (Warehouse Management).

Conteúdos

- Características funcionais do software
- Implementação

Módulo III: Warepack

Carga Horária: 20h

Objectivos

- Saber utilizar a linguagem Warepack

Conteúdos

- Características funcionais do software
- Implementação

Módulo IV: GEODE

Carga Horária: 20h

Objectivos

- Saber utilizar a linguagem GEODE.

Conteúdos

- Características funcionais do software
- Implementação

Módulo V: Warehouse Boss

Carga Horária: 20h

Objectivos

- Saber utilizar a linguagem Warehouse Boss.

Conteúdos

- Características funcionais do software
- Implementação

Módulo VI: Warehouse Pro

Carga Horária: 20h

Objectivos

- Saber utilizar a linguagem Warehouse Pro

Conteúdos

- Características funcionais do software
- Implementação

Módulo VII: Exceed WMS (Exe warehouse management system)

Carga Horária: 20h

Objectivos

- Saber utilizar a linguagem Exceed WMS (Exe warehouse management system).

Conteúdos

- Características funcionais do software
- Implementação

4.10 – ESTÁGIO

Carga Horária: 360 h

Finalidade:

- Contactar com organizações de sector da Logística.
- Realizar actividades no sector da Logística.

Objectivos:

- Aprender a trabalhar em situação real, aplicando os conhecimentos adquiridos na escola.
- Descobrir a empresa como local organizado do sector da Logística, respeitando a pontualidade e disciplina no trabalho.
- Inserir-se numa equipa de trabalho, onde se poderá perceber a importância das relações humanas.

5 - AVALIAÇÃO

A avaliação de aprendizagens será realizada ao longo do ano lectivo pelos professores em cada disciplina, conforme o plano curricular proposto para a mesma. A avaliação final do curso contemplará a obtenção mínima de uma média ponderada de 10 valores às disciplinas da componente sócio-cultural e um nível mínimo de 10 valores a todas as disciplinas da componente científico-tecnológica. A avaliação do estágio deverá ser efectuada pelo responsável na empresa e pelo professor acompanhante do aluno, não podendo esta ser inferior a 10 valores.

A classificação final do curso é obtida pela aplicação da seguinte fórmula:

$$CF = \frac{2 \times [(CFSC + 2 \times CFCT) / 3] + CFCTb}{3}$$

onde:

CF – constitui a classificação final

CFSC – constitui a classificação da componente sócio-cultural;

CFCT – constitui a classificação da componente científico-tecnológica;

CFCTb – constitui a classificação da formação em contexto de trabalho.

Para a obtenção do DET (Diploma de Especialização Tecnológica), o aluno poderá desenvolver um projecto, com monitorização dos professores, a ser apreciada por um júri tripartido, conforme exigido pelo Sistema Nacional de Certificação Profissional. A avaliação proferida pelo júri não poderá ser inferior a 10 valores.

PROVA DE APTIDÃO FINAL

I - OBJECTIVOS

O objectivo deste projecto é avaliar os conhecimentos adquiridos no decorrer do curso, aplicados a uma situação concreta.

- Realizar um projecto para a implementação de uma operação logística
- Apresentar oralmente um projecto de forma inovadora e defendê-lo perante um júri.

II – PROCEDIMENTOS

O formando deverá ter em conta os seguintes aspectos:

- O projecto será desenvolvido nas diversas disciplinas
- A data limite para entrega das diversas partes do projecto será definida pelos formadores acompanhantes do projecto, no âmbito das disciplinas envolvidas no início de cada ano lectivo.
- A data limite para entrega do projecto é definida anualmente.
- O projecto deverá ser entregue no Secretariado da Escola, com cinco exemplares juntamente com o comprovativo passado pelo formador acompanhante. O Funcionário do Secretariado assinalará no respectivo livro a data da sua entrega e o aluno deverá, por sua vez, rubricá-lo.
- Quando não cumprido o prazo estipulado a entrega do projecto dependerá da decisão da Direcção Pedagógica.

II - CRITÉRIOS DE AVALIAÇÃO

1. Projecto

Os critérios de avaliação do projecto prendem-se com a capacidade de investigar elementos pertinentes para o mesmo e propor estratégias coerentes com o tipo de projecto em análise.

Os critérios de avaliação serão discutidos os formadores das diferentes disciplinas envolvidas no projecto e os formandos.

2. Prova de Aptidão Final

Após o formando concluir todos os módulos do seu curso ficará em condições de, entregando o seu projecto, submeter-se à Prova de Aptidão Final.

No dia e hora agendados terá de apresentar o projecto perante um júri constituído por um mínimo de três e um máximo de cinco elementos que são:

- Director Pedagógico da Escola, que preside;
- Formador Acompanhante do Projecto;
- Empresário Especialista na área

Após 15 minutos (no máximo) em que o formando irá apresentar o projecto, o júri colocará as questões que considerar pertinentes, às quais terá de responder de forma satisfatória.

Os critérios e ponderação para avaliação da Prova de Aptidão Final são:

Inovação (30 pontos)

- Originalidade do projecto;
- Originalidade do conceito;
- Contributo do projecto para a modernização do sector;

Rigor Científico (50 pontos)

- Respeito pelas grandes competências transversais à realização do projecto em curso
- Clareza;
- Documentação;
- Rigor Científico

Exequibilidade (20 pontos)

- Adequação do projecto ao contexto sócio-económico em que se insere;
- Capacidade de mobilização dos recursos necessários.

Apresentação do Suporte Escrito (20 pontos)

- Qualidade gráfica;
- Estruturação e rigor ortográfico do texto;
- Clareza do discurso;
- "Cunho pessoal".

Apresentação Oral (50 pontos)

- Qualidade gráfica dos suportes utilizados;
- Suportes Inovadores;
- Criatividade;
- Clareza do discurso.

Defesa (30 pontos)

- Capacidade de argumentação;
- Utilização de uma linguagem técnica;
- Sentido crítico;
- Capacidade de aceitar críticas;
- Postura profissional.

Avaliação

A avaliação é um aspecto fundamental de todo o processo de aprendizagem. Nela devem participar docentes e alunos, com um carácter essencialmente formativo.

A avaliação assume carácter predominantemente formativo, sistemático e contínuo, incidindo sobre:

- Conhecimentos.
- Transposição de conhecimentos.
- Capacidade de saber fazer.
- Responsabilidade.
- Capacidade de relacionamento.
- Espírito de iniciativa.
- Assiduidade.
- Pontualidade.

Como forma de melhorar o processo de aprendizagem deve-se privilegiar a auto e hetero-avaliação, pois não só se trata de avaliar o produto de aprendizagem, através da observação de mudanças comportamentais, mas também, as mudanças qualitativas, que entram no domínio das atitudes, dos valores, e das crenças.

As actividades independentes e os projectos realizados pelos alunos permitem-lhes, através da aquisição e do tratamento de informação, desenvolver capacidades intelectuais, tanto a partir de vivências individuais como de grupo. Por outro lado, as actividades escolares como as aulas ministradas pelo docente, a apresentação dos projectos à turma, o trabalho de campo, a presença e a partilha da experiência de empresários, desenvolvem nos alunos outro tipo de aquisições, de capacidades e de atitudes, como sejam o saber ouvir, o respeito pelo próximo.

Deve-se ter em conta que, num ensino diferenciado, a progressão do plano de estudos realiza-se mediante a consecução de aprendizagens significativas definidas para cada módulo e a avaliação deve ser perspectivada segundo uma referência criterial, isto é, segundo critérios previamente definidos e negociados entre docente e alunos.

A avaliação processa-se segundo duas modalidades:

- Formativa, de carácter sistemático e contínuo.
- Sumativa.

As modalidades de avaliação formativa e sumativa assumem funções distintas e realizam-se em momentos diversos.

A avaliação formativa visa sobretudo:

- Informar o aluno sobre a progressão dos resultados obtidos na aprendizagem, esclarecendo-o sobre as causas do seu sucesso ou insucesso e estabelecer estratégias de remediação.
- Estimular o aluno no seu desenvolvimento global.
- Certificar os saberes e competências adquiridas pelos alunos.

A avaliação sumativa realiza-se sempre que seja necessário fazer um balanço das aprendizagens desenvolvidas.

As funções da avaliação sumativa variam de acordo com os momentos em que esta se realiza:

- No decurso do processo de aprendizagem tem uma função formativa, uma vez que permite adequar o ensino às necessidades dos alunos.
- No final de cada módulo tem como função fundamental as decisões sobre reorientação do percurso escolar dos alunos.
- No final de cada disciplina ou área disciplinar fundamenta a certificação.
- No final do curso fundamenta a atribuição de um diploma.

A avaliação sumativa exprimirá uma interpretação, o mais rigorosa possível dos dados colhidos durante o processo de aprendizagem. No seu decorrer deverá proceder-se a uma observação continuada e posterior comunicação, não apenas das aquisições no domínio cognitivo, mas também das atitudes, das capacidades ou seja, da forma como se exprime o saber, o saber fazer, o saber ser, o saber tornar-se.

Nos Conselhos de Turma os docentes, além de atribuírem as avaliações formativas e quantitativas, devem analisar:

- A organização pedagógica dos espaços e dos tempos.
- As condições de realização das aprendizagens.
- As práticas docentes e discentes.
- Os reajustamentos a introduzir no processo de aprendizagem.

A avaliação sumativa, realizada módulo a módulo, permite traçar o perfil evolutivo da aprendizagem e propor para ratificação à Direcção Pedagógica as avaliações que foram lançadas em pauta e posteriormente afixadas.

