Cambridge TECHNICALS

OCR LEVEL 3 CAMBRIDGE TECHNICAL

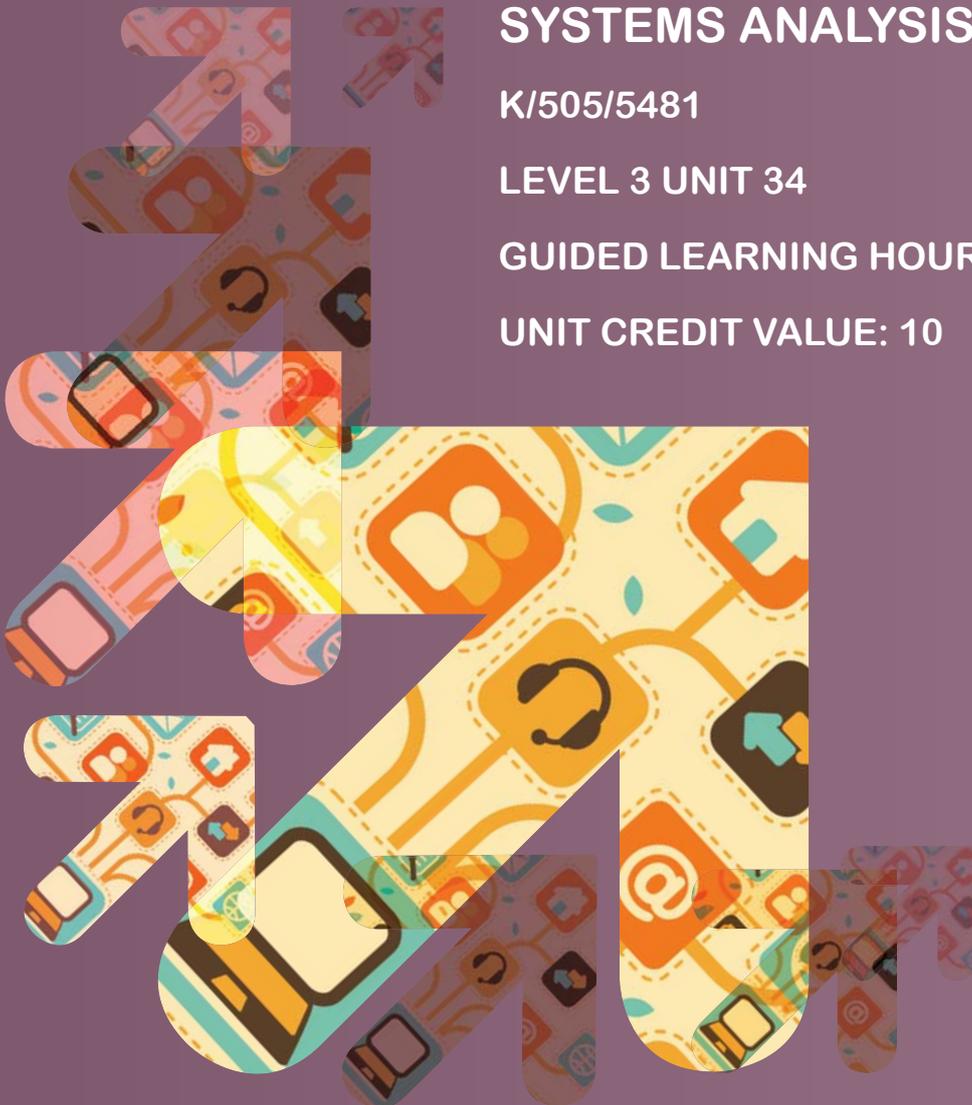CERTIFICATE/DIPLOMA IN

IT

SYSTEMS ANALYSIS

K/505/5481

LEVEL 3 UNIT 34

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10

OCR

SYSTEMS ANALYSIS

K/505/5481

LEVEL 3 UNIT 34

AIM AND PURPOSE OF THE UNIT

This unit will enable learners to gain an understanding of the processes undertaken in a systems analysis and how to plan a system development.

On completing this unit learners will understand the requirements of a feasibility study including the constraints on a system development. Learners will understand how system requirements are documented, and be able to carry out a systems analysis. They will be able to plan for a system development by producing a formal project plan.

ASSESSMENT AND GRADING CRITERIA

Learning Outcome (LO) The learner will:	Pass The assessment criteria are the pass requirements for this unit. The learner can:	Merit To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	Distinction To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand the requirements for system development	P1 explain the purpose of a feasibility study		
	P2 describe potential constraints on a system development		
	P3 explain primary systems analysis methodologies	M1 explain how a prototyping approach can be used in a system development	D1 compare and contrast the appropriateness of different systems analysis methodologies
2 Understand the importance of documenting system requirements	P4 explain why components within a system requirements specification are documented		
3 Be able to carry out a systems analysis	P5 conduct a systems analysis for identified requirements	M2 compare alternative options considered during the systems analysis	
	P6 present findings from a systems analysis		
4 Be able to plan for a system development	P7 create a formal project plan for a system development	M3 justify the decisions made in the formal project plan for a system development	D2 evaluate effectiveness of proposed contingencies against identified risks in the formal project plan

TEACHING CONTENT

The unit content describes what has to be taught to ensure that learners are able to access the highest grade.

Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work though these do not need to be the same ones specified in the unit content.

LO1 Understand the requirements for system development

- **Feasibility study factors**
  - purpose – technical, economic, operational, ethical etc
  - cost benefit analysis
  - build or buy a solution
  - user liaison – terms of reference, primary user(s), authority
  - tendering – tender plans, evaluation, recommendations

- **Review feasibility studies available in the public domain**

- **Constraints**
  - platforms – legacy, alternatives, integration of systems
  - expertise – user skills, development environments available
  - deadlines – external factors(e.g. legal requirements), internal targets(e.g. year-end)

- **System methodologies and approaches**
  - project proposal -project name, problem or opportunity decision, project description, expected benefits, consequences of rejection, resource requirements, alternatives, other considerations, authorisation
  - structured analysis tools – e.g. data flow diagrams, entity modelling etc.
  - CASE tools

- **Systems** e.g. RAD, SSADM, Yourdon Prototyping (functional, non-functional), Waterfall, Spiral, formal methods, CASE etc

- **System Life Cycle (SLC)**

LO2 Understand the importance of documenting system requirements

- **System requirements specification**
  - inputs - data capture, data accuracy
  - outputs - reports(detailed , summary, selective), screens,
  - processes – e.g. calculations, updates, extracts, querying

  - data - structures, main key identification, coding systems
  - constraints – costs, deadlines, company standardisations, legacy limitations

LO3 Be able to carry out a systems analysis

- **Interviewing**
  - questioning techniques
  - handling meetings
  - note taking

- **Observation**
  - procedures, limitations, human issues
  - documenting findings

- **Questionnaires**
  - design, usage, limitations

- **Recording findings**
  - notes, diagrams (e.g. information flows), emails , meeting minutes
  - summarising content
  - identifying key criteria
  - understanding links between individual requirements
  - alternatives based on constraints (e.g. due to cost, time, resources etc.)

LO4 Be able to plan for a system development

- **Systems life cycle approaches**
  - e.g. prototyping (functional, non-functional), Waterfall, Spiral, formal methods, CASE etc.

- **Project Planning**
  - tools
  - PERT/CPA
  - Gantt
  - implementation and changeover approaches(e.g. pilot, parallel etc)

- **Outline project plan**
  - project scope (purpose, objectives)
  - budget
  - client requirements
  - deadlines

- resources
- constraints
- legal or regulatory requirements

- **Formal project plan**
  - tasks and dependencies
  - time scales
  - resources
  - milestones
  - justification of decisions made
  - communications
  - risk management.

- **Contingencies**

DELIVERY GUIDANCE

Understand the requirements for system development

Learners should firstly be introduced to concepts of systems analysis and how this fits into the development of business systems – giving examples of typical business systems and indeed how long some can take to be developed. One example could be the development of government systems like the benefit systems, the National Health nationwide developments and typical business systems such as CRM, Sales or Marketing.

Learners could then be involved in discussions, exercises and research to specify exactly what a feasibility study and report cover – paying particular attention to system costs – development and running costs – and costing system benefits – saving worker time, improved accuracy, improved MIS and better customer experience.

Constraints (legacy platforms, budgets, deadlines etc.) can be covered by examples of on-going system developments especially government projects (like NHS spine) which can be covered in a teaching session or established by class research and feedback.

Guest speakers from the management team could answer questions regarding their company's information systems or arrange a visit to a local company looking at their departments and functions. This will give them a holistic view of all characteristics in relation to business systems.

An explanation of primary systems analysis methodologies could be delivered by the tutor with an overview of system methodologies in current use (e.g. RAD, SSADM, Yourdon, and Prototyping) and the role of development tools in larger system development. Learners can be asked to research CASE and other development tools and feedback on their use, popularity and availability. To consolidate learning tutors could provide several brief scenarios to learners which will contain situations regarding system developments (and failures) and the groups could then discuss which approaches are most applicable. This will stimulate the learner to research further and embed the knowledge pertaining to system methodologies.

Understand the importance of documenting system requirements .

Learners can be tasked with identifying different System Life Cycles (SLCs) and the documentation that would be included or developed at each stage of a development with some example diagrams or images wherever realistic.

Learners should then be presented with professional systems documentation for them to identify the key components included within them. A range should be provided by the tutor to enable the learners to consider the importance of the components across a range of system developments. They should be encouraged to explore the relevance and detail required for each component of the specification which could be carried out through small group research and then presented to a wider group.

Be able to carry out a systems analysis.

This could be delivered by the tutor with an overview of approaches to techniques for collecting information from users. Learners in groups could compare and contrast the approaches indicating strengths and weaknesses of each method (interviewing, observation, questionnaires etc.) presenting findings to the class with reasoned arguments.

The tutor can provide examples of questions which pinpoint crucial information needed in an analysis – who, where, when and how - type questions.

Given background scenarios the learners, again in groups if desired, could carry out an analysis to extract information from role playing staff such as the tutor. Learners will need enough information about a planned system to be able to form realistic questions and then ask them in the appropriate format (interview, questionnaire etc.)

A pre-prepared list of "identifiable facts" should be supplied to the role player(s) to enable them to respond to questions asked by learners.

Learners should then be taught how to summarise and analyse findings to consider all aspects of the information captured. This could be summarised in a variety of different formats to include tables, charts and lists. This should then form the basis for their systems documentation on which to plan.

Be able to plan for a system development

The tutor could deliver an overview of approaches to the systems life cycle (e.g. waterfall, spiral, RAD etc) and lead a discussion on the strengths and weaknesses of prototyping as a developmental approach.

Learners should also be given an introduction to enable them to research the component parts of project planning – e.g. using PERT or similar – with example tasks for learners. Learners can then produce a detailed working project plan with GANTTs etc as appropriate. A case study (possibly one used in earlier learning could be used with full description of

user knowledge and personnel to enable a realistic plan to be constructed.

By sharing their outline project ideas learners should be able, with the support of the tutor, to critique each other's plans and should be asked to explain their decisions with the group. The group could then feedback where they feel there are areas for improvement. They should clearly explain the risks they have identified in their system development plan and explain the tasks, timescales and activities they have incorporated within the plan as contingencies to address these.

SUGGESTED ASSESSMENT SCENARIOS AND TASK PLUS GUIDANCE ON ASSESSING THE SUGGESTED TASKS

Assessment Criteria P1, P2

For P1 learners must explain the purpose of a feasibility study as outlined in the teaching content, This could be evidenced in the form of a report or presentation.

For P2 learners must describe potential constraints on a system development as outlined in the teaching content, This could be a presentation or report,

Assessment Criteria P3, M1, D1

For P3 learners must explain primary systems analysis methodologies. Evidence could be in the form of a report or presentation in which learners cover the major systems analysis methodologies as detailed in the teaching content

For M1 learners could extend the explanation for P3 giving specific examples of how prototyping could be used in a system development. Evidence could be in the form of a report or presentation.

For D1 learners could further extend the evidence for P3 and M1, comparing and contrasting the appropriateness of different systems analysis methodologies for different system developments.

Assessment Criterion P4

For P4 learners must explain why the components outlined in the Teaching Content have to be documented for a systems requirements specification. This could be in the format of a systems specification giving different criteria and explaining the importance and purpose of each.

Assessment Criteria P5, M2, P6

For P5 learners must be given identified requirements from which they should conduct a system analysis. Learners could use interviews or questionnaires to conduct the analysis with tutors acting in role play. Evidence could be recorded using video, or documented questionnaires supported by witness testimonies.

For M2, learners must produce a comparison of at least two alternative options based on the constraints that they have identified from their systems analysis in P5. This could be in the form of a table, part of the presentation for P6, or a report.

For P6 learners must present the findings of the system analysis in a summarised and logical format for potential use by a systems developer. This could be in the form of a systems requirement document or a report which may be supported by the inclusion of charts, diagrams and tables to visualise their findings.

Assessment Criteria P7, M3,D2

For P7 learners must provide evidence of their formal project plan for a system development which must reflect the items detailed in the teaching content.

For M3 this will be an extension of P6 where learners must justify the decisions made in their formal project plan. They should identify alternative options considered during the planning process, and why the choices made for the final project plan were valid.

For D2 learners must focus on the risks to the project that they have planned. They should explain how the risks were identified and considered tangible risks. They should then explain the contingencies they have included within their plan and provide a detailed evaluation how this will minimise potential risks.

MAPPING WITHIN THE QUALIFICATION TO THE OTHER UNITS

Unit 9 Project planning with IT

Unit 20 Impact of the use of IT on business systems

Unit 25 Data analysis and design

Unit 33 Systems design

LINKS TO NOS

4.1 Systems Architecture

4.2 Data Analysis

4.3 Human Needs Analysis

4.4 System Analysis

6.1 Information Management

CONTACT US

Staff at the OCR Customer Contact Centre are available to take your call between 8am and 5.30pm, Monday to Friday.
We're always delighted to answer questions and give advice.

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