

Programme Specification

1. **Awarding Institution / Body:** Oxford University
2. **Teaching Institution:** Oxford University
3. **Programme Accredited by:** N/A
4. **Final Award:** Advanced Diploma
5. **Programme Title:** Undergraduate Advanced Diploma in Data and Systems Analysis
6. **UCAS CODE:** N/A
7. **QAA Benchmarking Group:** Computing
8. **Date of Production/last reviewed :** May 2009

9. Aims of Programme

The overall aim of this one year Advanced Diploma course is to provide the successful participant with the skills to develop real-life up-to-date computing applications and, at the same time, enable understanding of underlying concepts so that the student may cope with future developments and technology changes.

The theme of the course follows through the analysis and design of practical real-life computing applications, using modern analysis and design techniques. Students develop and extend their analysis and design skills and deepen their appreciation of the structure of modern software development.

This course may be used for professional development. Successful participants will gain practical skills to progress careers either within the computing industry or in the application of computers within other professional disciplines.

The Advanced Diploma seeks to enable students to:

- understand the concepts and principles of modern software engineering
- analyse real-life (ill-defined) information processing problems, and construct design solutions
- master some of the common modelling techniques of data and systems analysis
- obtain direct personal experience of team-working in the design of a software system, with staged deliverables and tight deadlines.

The course is designed to be at FHEQ Level 6 (this is equivalent to the level of work expected during the third year of an undergraduate degree). Successful students will have demonstrated:

1. A systematic and up-to-date understanding of the underlying principles of the discipline;
2. An ability to deploy these principles in the analysis of typical real-life problems;
3. Conceptual understanding enabling an extension of knowledge and skills as the field advances;
4. An ability to resolve uncertainty and ill-defined problems;
5. An ability to manage their own learning, to draw upon relevant information sources, and to recognise the continuing need for further personal development;
6. Transferable skills relevant to employment; including communication; critical judgement-making; decision making in trade-off situations; team working and project management.

The course is designed to be studied remotely. All of the course material and support is on-line. Student teams will involve people from a variety of backgrounds and from all over the world. They work entirely electronically.

10. Learning Outcomes and their achievement

Learning Outcomes:

The Units given with each heading denote where the outcome is principally (but not exclusively) achieved.

A. Knowledge and Understanding (Units 1 to 4)

At the end of the course students will be expected to:

- understand the system life-cycle models of software production
- be able to select the most appropriate model for a given situation
- understand some of the principles and practices of project management
- understand various modern systems analysis techniques
- understand the principles of data analysis and design, modelling, normalisation and database construction
- be able to comprehend and construct various software modelling constructions, such as data flow diagrams, entity-relationship models, and the graphical representations of the Unified Modelling Language.
- understand the principles of software testing, verification and validation
- appreciate the particular problems associated with modern distributed computing
- have knowledge of the XML meta-language

B. Cognitive/Intellectual Skills (Units 2 to 4)

At the end of the course students will be expected to be able to:

- analyse a real world situation in terms of: interfacing, function, data storage, data handling and data processing
- form conceptual software models of data and processing
- appreciate modern possibilities for augmenting their own knowledge in specific areas
- analyse a real world computing problem and choose appropriate techniques to model it.

C. Transferable Skills (Units 0, 1 and 5)

At the end of the course students will also be expected to have developed a range of transferable skills including:

- the discipline of independent and effective study
- the capacity to analyse and solve problems
- the capability to interact productively within a learning group or team environment
- the ability to construct an argument and communicate it
- an awareness of professional, social and ethical issues relating to IT

D. Practical skills (Units 1 and 5)

At the end of the course students will also be expected to have developed a range of practical skills including

- analysing an ill-defined real world problem
- project management
- working in a team
- presentational and representational skills

Achievement of Learning Outcomes

Taught Classes and Practicals

The components of the course are taught in six units. These units are as follows:

0. Introductory unit
1. The system life-cycle and management
2. Systems analysis and design - Data driven and procedural techniques
3. Systems analysis and design - Data organisation
4. Systems analysis and design - Objects and architectures
5. Group project

Comprehensive on-line study material and exercises will be provided.. There is no specific course textbook, but students will be expected to obtain useful material from outside sources and some will be suggested as the course progresses. We also offer continuous online support throughout the course.

Coursework Assignments

Students must complete four written assignments covering all aspects of the taught material and individually based on the material in units one, two, three and four. A key purpose of these assignments is to enhance the learning process. Comprehensive developmental feedback is provided to the students on return of their assignments.

Each assignment provides 20% of the final assessment marks. Although students must *complete* each assignment to pass the course, final grades are based on the aggregate mark obtained. Assignments have deadlines which, ordinarily, must not be missed. The introductory unit is not assessed.

Project Work

For Unit 5 students undertake an assessed team project. The mark for this represents the final 20% of the assessment and some part of it will represent team, rather than individual, performance.

The final aggregate mark for the course is the sum of the scores for the five units: one, two, three, four and five.

Demonstration of Achievement of Learning Outcomes

Achievement of the learning outcomes is measured through assessed work in the following ways:

- Each taught unit has a formal assessment. These usually include multiple questions and are carefully designed to test not only the students own understanding of the concepts taught, but also their extension to new problem areas.

- Unit 5 includes an assessment in the form of both team submissions and individual assignments. The individual component requires the student to assess critically the performance of their team and their own individual achievements.

11. Programme Structure

The course is offered over one year on a part time basis. Students are required to demonstrate satisfactory participation in the practical exercises, and complete all assignments, including those of the team project.

Final grades are based on aggregate performance over the five units.

Unit 0 System Set-up and Introductory Unit

These sessions provide essential set-up and study information in preparation for the rest of the course.

This will include:

- (1) System and software checks
- (2) How to use the course facilities (WebBoard, CASS, etc.)
- (3) Details of the study programme
- (4) Study skills advice
- (5) Notes on team working

Unit 1 The System Development Life-cycle and Management

An introduction to the Life-cycle model of software production, and project management.

This will include:

- (1) The need for a managed process
- (2) Process models and how to select the most appropriate model for a specific project.
- (3) The general concepts of project management.
- (4) Practical aspects of organising a software project in a real-life context.
- (5) Notes on modern structured testing
- (6) Case studies.

Unit 2 Systems Analysis and Design - Data Driven and Procedural Techniques

An introduction to data and process based analysis and design.

This will include:

- (1) Overview of Systems Analysis.
- (2) Overview of Systems Analysis contexts and methodologies including SSADM and Yourdon.
- (3) Requirements Elicitation
- (4) Requirements Definition
- (5) Requirements Validation
- (6) Data Driven and Procedural Models
- (7) Testing methodologies
- (8) A case study

Unit 3 Systems Analysis and Design - Data Organisation

The principles of modern data organisation techniques, and how data is accessed and managed by software.

This will include:

- (1) The Relational Model.
- (2) Object Models.
- (3) Implementing databases

Unit 4 Systems Analysis and Design - Objects and Architectures

This unit covers the same underlying analysis as Unit 2, but from an object-oriented paradigm perspective. It provides a bridge to modern O-O programming techniques.

This will include:

- (1) Introduction to the ideas of O-O.
- (2) O-O analysis and design.
- (3) UML diagrams (we use an open source tool to produce these).
- (4) Modern enterprise computing.
- (5) A case study

The unit also has a section on the XML language and some of the technologies associated with it.

Unit 5 Team Project

Our fifth unit introduces no new material but instead involves the practical use of what has been taught in a particular, and poorly specified situation. It is essentially a requirements and design exercise based on the analysis and design of a real-life system.

The team will be expected to:

- work together through regular on-line communication
- conform to predefined rules of etiquette for interactions
- organise themselves into a productive operation
- produce a sequence of timed deliverables which will be assessed.

Each participant will be expected to:

- achieve a defined minimum participation threshold
- submit an individual report reflecting on the group's achievements, which will be assessed

The team's interactions will be monitored and mentored.

12. Support for learning

Course specific support for all students:

- (a) An on-line Course Handbook which includes details of the course, Department and contact information.
- (b) An Induction programme (Unit 0) to familiarise students with the course on-line infrastructure, staff and fellow students, locations and use of library and on-line information sources.
- (c) Advice on study skills, including time management, accessing and using libraries and IT resources, reading for academic purposes, taking notes, assignment preparation skills, writing and project reporting skills; together with specific information about the dangers of plagiarism.
- (d) Support from a personal tutor covering all aspects of academic study.
- (e) Detailed individual feedback on assignments in the form of script comments, summary of strengths and weaknesses and discussion (in tutorials) of assignment, comments and broader issues surrounding assignment tasks.
- (f) Response to queries raised in the group on-line conferences and face-to-face tutorials
- (g) Help in the preparation and writing of project reports.

- (h) Help, advice and, where required, referral to University support systems in cases of student disability such as dyslexia.
- (i) Tutorial encouragement to students to reflect constructively upon their own strengths and weaknesses
- (j) Advice on progression to further study
- (k) Response to student feedback on the course, including any actions taken.

The Department for Continuing Education will provide:

- (a) Study skills courses aimed at adult part time learners
- (b) Access to the services of a Student Advisor who has specific experience of the needs of part time adult learners
- (c) An on-line forum for student discussion
- (d) Access to library facilities at OULS, Rewley House and specialist libraries
- (e) An OU card and access to OUCS services
- (f) Access to hardship funds and advice
- (g) A Complaints and Appeals system
- (h) IT support from TALL

13. Criteria for admission

Prospective students are expected to have obtained academic experience of computing at tertiary level or to have obtained practical experience of working in the industry over a period of years.

We do not have formal entry requirements for this course but students will be expected to have:

- experience of using and setting up modern computing applications, including such common applications such as spreadsheets and databases.
- underlying knowledge of computing principles and technology
- some limited programming experience
- an ability to handle the concepts involved at this level of academic study.

Applicants to undergraduate level courses who do not have English as a first language are required to take an International English Language Teaching System Test (IELTS) or equivalent and to gain a score of at least 7.0.

Applicants will be expected to demonstrate an approach to their study which includes demonstrable skills of critical analysis, wide contextual knowledge and the ability to manage their own time.

All applications must be made through an on-line application form, which has been designed to help judge the above criteria. In addition two relevant references are required. In cases of doubt, further evidence or additional references will be sought.

The ability of students to finance their study is not one of the criteria for academic acceptance. However, applicants may not subsequently be admitted to the course if they are unable to provide evidence of their ability to pay the course fees. In cases where students anticipate difficulties with payment, all possible information and guidance on sources of financial support will be offered.

14. Evaluation and improvement of quality & standards

The following techniques are used to evaluate and improve the quality of the course:

- Student feedback and consultation: Each unit of the course includes a questionnaire, and there is a more detailed questionnaire at the end of the course. Feedback is also obtained by monitoring the on-line conference discussion; experience with other on-line courses has shown this to be a good source of candid student opinion. Urgent issues are resolved on a day to day basis by the Course Director who is in daily contact electronic contact with the students.
- Student destination, whether employment or further study. The course director reports on destinations (where known) in the annual report to the Board of Studies. The destinations enable some assessment of the personal development achieved by the student through the course.
- Course team meetings are held at least annually at which the current course structure and delivery arrangements are discussed and recommendations made for change and improvement.
- The internal examiners' report comments on the standards of learning and examination performance.
- The external examiner moderates work to ensure the standards of teaching and assessment are appropriate and consistent. S/he provides an annual report which is considered by the Board of Studies, the CE Board and the Education Committee.
- The Board of Examiners meets annually to consider and agree marks, progression and awards.
- The Course Director's report reviews the past year, and reports any developments to the Board of Studies. Detail is provided on admissions, retention, staffing, course changes feedback and responses to feedback, student performance and any difficulties encountered with the course.
- The Board of Studies receives the Course Director's Report and the Examiners' reports, reviews the programme of study, scrutinises and approves the course and examination arrangements.
- Departmental committees (Assessment and Teaching Committee and Academic Board) consider proposals for new course or changes to courses which will, inter alia, improve and extend teaching and learning opportunities. They advise on academic policy, quality assurance and enhancement of the course provision.
- The Continuing Education Board has formal responsibility for upholding the quality of the course. It has to review and give approval for any changes to regulations.
- The Education Committee bears overall responsibility for teaching, learning and assessment in the University. It has to consider and give approval for any changes to regulations.

- Best practice from other HEIs is identified through reports of external examiners, attendance at conferences, reading of journals and other forms of academic communication.
- Accreditation by external organisations (in appropriate cases) indicates that the course meets employers' or outside requirements
- Professional involvement by the course tutors in related activities. Currently these include similar courses at the Open University, and the British Computer Society accreditation and examination processes.
- On-going research by members of the course team comparing the learning experiences of on-line and classroom based students.

15. Regulation of assessment

See the official University Regulations. The following is a summary.

Successful students will be awarded an Oxford University Undergraduate Advanced Diploma in Data and Systems Analysis, equivalent to 60 CATS points at FHQE Level 6. Outstanding performance will qualify for a Distinction.

To gain the award, students must demonstrate satisfactory participation in the practical exercises, satisfy the examiners in the coursework assignments based on the taught units, and in the group project assignment.

Students must submit all assignments, including the group project report.

To gain the award students must achieve a pass mark of 40% for the *average* of the five assignments (four coursework assignments and one project assignment). All five assignments are equally weighted.

All assessments will be moderated by an external examiner.

Assessment Criteria

Coursework Assignments

Assignments are marked by tutors with respect to specific marking schemes. These follow the general criteria given in the table below.

<u>Marking Scheme</u>	<u>Grade</u>	<u>Qualitative Description</u>
85% - 100%	Distinction	Comprehensive knowledge Penetrating critical judgement Confident, convincing expression of argument Excellent presentation Evidence of independent and original thought and execution
70% - 84%	Pass 2	Thorough knowledge Balanced, careful critical judgement Clear, concise expression of argument

		Consistently good presentation Useful contribution, some initiative shown
55%-69%	Pass 3	Variable knowledge Some critical judgement but maybe inconsistent Expression of argument diffuse Question not entirely answered Presentation uneven Derivative contribution
40% -54%	Pass 4	Some knowledge and evidence of its analysis but insufficient critical judgement Confused expression of argument Careless presentation Superficial contribution
39% or less	Fail	Some knowledge but little evidence of synthesising or applying that knowledge

Project Marking

The group project will be assessed through:

- a) Team working (50%)
- b) An individual report (25%)
- c) An individual assessment (25%)

Assessment Controls

A Board of Examiners will be appointed under the procedures governing the Nomination of Examiners laid down in the Examination Decrees. The Board will normally be constituted of at least two internal examiners, and an external examiner, appointed by the Vice-Chancellor and Proctors on behalf of the University. Assessed work is marked by appointed assessors (tutors) and samples sent to the external examiner.

The external examiner reviews samples of assessed coursework to ensure consistency in marking, moderates all project reports, attends all Board of Examiner meetings and prepares an annual report on the standards of the course, its content, structure and arrangements for its delivery for the Board of Studies.

The Board of Examiners meets annually to discuss and agree marks progression and awards.

The Chairman of the Board of Studies responds on a day to day basis to requests for extensions and appeals. The Board of Studies reviews the assessment methodology, the course content and delivery.

The Continuing Education Board considers the examiners' reports and any implications for the assessment methods used.

The University Proctors carry overall responsibility for examinations, issue guidance to students and examiners, deal with cases of potential breaches of the rules relating to examinations (e.g. cases of suspected plagiarism) and resolve queries and complaints relating to the conduct of examinations.

The Education Committee sets the general policy framework for examinations and issues policy guidance. Its duties include approving regulations and the practical arrangements for examinations, in consultation with the Proctors. The Committee receives examination reports from external and internal examiners and monitors the responses to them. It bears overall responsibility for educational standards within the University.

16. Indicators of programme quality

The following indicators will be used to assess the extent to which the course satisfies its stated objectives:

- Student retention and completion rates: to assess student satisfaction and the adequacy of student support.
- Student results profiles: to assess overall achievement and progression during the course.
- Destination data: to demonstrate progression from the course and market recognition of the qualification awarded. Further evidence of the quality of teaching and learning is provided by the subsequent performance of students accepted onto full or part-time degree courses at Oxford and other institutions.
- The annual External Examiner's report: to provide impartial feedback on the course and comparison with the standards achieved by similar courses in other institutions.
- The annual evaluation of programme quality by students: to provide a 'user assessment' of course content and delivery.
- Evidence of the quality of the Department: for example the quality of its staff (as attested by RAE, success in securing external funding, external testimony)

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