1. Basic information

- Course Name: Computer Science
- Course Code: CC102A
- Level (UG, PG): Undergraduate
- Academic Period: 2014
- Faculty: Faculty of Technology
- Department: Computer Engineering and Cyber security
- PMB COMP
- Offered at: DM - DMU Leicester
- Type (single, joint.): SI
- Highest Award : Bachelor of Science (Honours)
- All possible exit awards : Bachelor of Science; Certificate of Higher Education; Diploma of Higher Education; Institutional Undergraduate Credit
- Award notes : The programme contains four diets leading to four named awards.

  Computer Science
  Software Engineering
  Internet Computing
  Artificial Intelligence with Robotics

  The BSc(Hons) Computer Science in sandwich mode has full exemption and CEng/CSci accreditation (partial)
  Condition
  1. Students must pass, at the first attempt, a practical problem-solving project. This applies to students on the five intakes from 2005 to 2009 inclusive and backdated to the 2003 intake.

  Award of Computer Studies (see template for CC102U)

Professional Body Recognition
- Accreditation by Professional/Statutory body:

Yes

- Exemption by Professional/Statutory body:

Yes

- Details

The British Computer Society

- Modes of attendance: Main MOA: Full-Time
  Other MOA: Part-Time; Year Out/On Placement
- Mode Notes:

- Course leader: David Smallwood

2. Entry Requirements and Profile

Award
BSc/BSc(Hons) Computer Science
BSc/BSc(Hons) Software Engineering
BSc/BSc(Hons) Internet Computing
BSc/BSc(Hons) Artificial Intelligence with Robotics

Standard Entry Requirements
Candidates must normally offer one of the following
5 passes at GCE/GCSE level including Mathematics and English with
260 points from at least 2 subjects at A2 or AVCE (excluding General Studies), or equivalent AS levels.
Overall merit in an appropriate BTEC National diploma.

Merit in an Advanced GNVQ in Information Technology , plus 3 additional units.
Any qualification deemed equivalent to the above
The particular qualifications of each candidate are considered on an individual basis.
Candidates who do not possess the normal entry requirements may be considered for exceptional admission.
Applications are welcomed from mature students whose formal qualifications do not match the levels given above, but who have demonstrated the necessary ability to pursue the course and benefit from it.

3.   Course Description

Characteristics and Aims

Brochure Entry

Computer Science is popular subject which attracts people with many different skills, backgrounds and aspirations. Throughout the relatively brief history of this exciting discipline we have seen significant advances both in our theoretical understanding of the complex processes that make computers work; and in the very technology which embeds computer systems within so many areas of our industrialised society. We rely increasingly on computers to support our commercial, financial, medical, industrial and public-service infrastructures. In the home, too, computers are used to control many of the appliances and entertainment systems that we use every day. The study of computer science provides an insight into how these machines work; how they communicate with us and with each other; and how they are used in so many areas of our modern, industrialised society.

The Quality Assurance Agency (QAA) Computing Benchmarks (2007) identified thirty-seven cognate areas within computing ranging from technical infrastructure through to the professional, social and ethical issues. Computer Science has been designed to provide students with contemporary computing theory, current methodologies, and a range of practical skills. The course offers modules that cover the breadth of the discipline and specialist subjects that reflect the research areas within the Faculty. Graduates are well equipped to play a significant part in the computing industry and have access to a wide range of good employment opportunities.

Level 4 (First Year)
The first year of study comprises a suite of modules covering the key subject content including the underpinning foundations of computing; computer architecture; programming; web interface development; mathematics for computing; database fundamentals; computational thinking. These modules provide a sound basis for students to make choices for further study at level 2.

Level 5 (Second Year)

Students select a pathway (or diet) in level 2 which defines the modules they take. There are three pathways
1.   The Computer Science pathway - the default route
2.   The Software Engineering pathway - coincides with the Software Engineering course second year
3.   The Bridging pathway - the route for HND Computing students who are transferring into Computer Science at level 5

Industrial Placement

The course offers students the opportunity to apply for a year-long industrial placement. This is often the first time the student sees how the concepts taught on the course are actually used in the "real world". Of course, the particular experience will depend upon the host company but students will often benefit from specialist training and will develop their range of practical, social and interpersonal skills. Students will be able to see first hand what working in a real company is like and will gain personal understanding of the expectations and responsibilities of being an employee in a professional environment.

Level 6 (Final Year)

The final year project develops the project management, report writing and presentation skills

particularly cherished by many employers. As well as the compulsory project the final year requires students to undertake modules covering software testing, software development methods, software management, software quality assurance, ethics and professional practice. The remainder of the final year (37.5%) is left for the student to choose modules from a range of options. The options may be restricted in regard of specific awards to reflect the outcomes of that award.

Resources
Throughout the course students have access to high quality, modern computer hardware and software. An enthusiastic team of tutors supports learning.

Employment
The study of computer science, as a single subject, has been designed to meet the needs of students wishing to become effective members of the computing industry. They can anticipate fruitful employment supporting and developing the vast number of applications of computer systems in all areas of business, e-commerce, leisure, entertainment, and industry. The course provides students with the theoretical knowledge and practical skills to engage in a wide range of exciting employment opportunities currently on offer, and also prepares them deal with the inevitable changes in the future.

Teaching, Learning and Assessment Strategies

The Learning Strategies section of the computing subject template describes the range of teaching, learning and assessment styles and strategies within the subject area.
The learning strategies of the course are therefore an amalgamation of the learning strategies of the individual modules on the course.
The compulsory modules on this course ensure that students learn by a combination of practical experience, self-study and research.

The strategies by which students may learn on this course include
· staff directed learning via lectures and tutorials or laboratories.
· Student-centred resource based learning (including web-based resources)
· collaborative and group based
· individual learning
· student centred learning via research
Assessment in each module is designed to meet the specified learning outcomes of the module.
Methods of assessment for modules will include
· time constrained phase tests
· portfolios of work
· programming and other laboratory exercises
· viva voce examinations
· individual and group work
· formal examinations
· project work
· reports and presentations

4.   **Outcomes**

Generic outcome headings	What a student should know and be able to do upon completion of the course
• **Knowledge & understanding**	General (including award of Computer Science) Students should be able to demonstrate a systematic understanding in the following key fields: Computer Architecture Computer Programming Data Structures and Algorithms Software Tools and Packages Data Analysis

	Database Design and Implementation Operating Systems and Computer Networks Web Interface Development Human-Computer Interaction Systems Analysis and Design Management and Organisation Testing and Evaluation Professionalism and Ethics
	Students should be able to apply, appropriately, the theoretical knowledge and practical experience they have learnt to each phase of the software lifecycle.
	Students should be able to describe the role of computer technology within business organisations. They should be able to evaluate and recommend appropriate computer systems for a given organisation and to recommend an appropriate implementation strategy.
	Students should be able to demonstrate knowledge and understanding of some areas in computing that are at the forefront of the discipline. These skills will often be developed through the study of specialised optional modules in the second and final years.
	Students should appreciate the relative merits and limitations of different computing environments, paradigms and methodologies.
	Specific (award of Software Engineering)
	The emphasis will be stronger on technical subjects - especially systems software and computer programming. A more rigorous (mathematical) view of software specification may be adopted to complement the more traditional approach.
	The final year project must include the development of a software system and should demonstrate the application of design and implementation strategies consistent with the appropriate development paradigm.
	Specific (award of Internet Computing)
	The emphasis will be stronger on technical subjects relating to web technologies - including both client and server side software.
	The final year project must include the development of a software system with a significant amount of web-based technology. The project may involve the use of current web-based technologies or the development of those technologies.
	Specific (award of Artificial Intelligence and

		Robotics)
		The emphasis will be stronger on subjects in the field of Computational Intelligence.
		The final year project must include the development of a software system that involves either a significant robotic content or involves the application of AI techniques. The project may use these techniques to solve a particular problem - or it may be an investigation into the techniques themselves. However, this is a practical project and must result in a demonstrable software/hardware product.
•	**Cognitive skills**	Will include Critical Evaluation Reflection and Communication Professional Considerations
•	**Subject specific skills**	Will include Architeture Comparative programming languages Computer-based systems Databases Data structures and algorithms Middleware Multimedia Operating Systems Professionalism Programming fundamentals Software Engineering Systems analysis and design Theoretical computing Web-based computing Other areas will be included in specific final year optional modules.
•	**Key Skills**	Will include Application of Number Communication Information Technology Improving Own Learning and Performance Problem Solving Working with Others

5. Structure and Regulations

Relationship Details

Module	Credits	Level	Take/Pass	Semester	Locations
CTEC1401	**30.00**	**1**	**Must Take**	**Y**	**DM**
CTEC1412	**30.00**	**1**	**Neither**	**Y**	**DM**
CTEC1801	**30.00**	**1**	**Must Take**	**Y**	**DM**
CTEC1901	**30.00**	**1**	**Must Take**	**Y**	**DM**
CTEC2121	**30.00**	**2**	**Must Take**	**Y**	**DM**
CTEC2602	**30.00**	**2**	**Must Take**	**Y**	**DM**
CTEC2701	**30.00**	**2**	**Must Take**	**Y**	**DM**
CTEC2901	**30.00**	**2**	**Must Take**	**Y**	**DM**
SAND2802	**0.00**	**2**	**Neither**	**Y**	**DM**
CTEC3110	**15.00**	**3**	**Neither**	**Y**	**DM**
CTEC3426	**15.00**	**3**	**Neither**	**Y**	**DM**
CTEC3604	**30.00**	**3**	**Neither**	**Y**	**DM**

CTEC3901	30.00	3	Must Take	Y	DM
CTEC3902	15.00	3	Neither	Y	DM
IMAT3404	15.00	3	Neither	Y	DM
IMAT3406	15.00	3	Neither	Y	DM
IMAT3426	30.00	3	Neither	Y	DM
IMAT3429	15.00	3	Neither	Y	DM
IMAT3451	30.00	3	Must Take	Y	DM
IMAT3608	30.00	3	Neither	Y	DM
IMAT3901	15.00	3	Must Take	Y	DM

Structure

Structure notes

1 Course notes

Course Specific Differences or Regulations

1 The requirements to progress into the sandwich placement are determined by Faculty Policy which required that normally students must have passed a minimum of 60 credits at level 2.

Numbers at sites, including partner institutions

1

Relevant QAA Subject Benchmarking statement(s)

1 This course has been informed by the QAA Subject Benchmark Statement in Computing.

6.   **Quality Assurance Information**

QA of Workbased Learning

Liaison with Collaborative Partners

Procedures for Maintaining Standards

The Programme is managed by a programme leader together with a programme team. They are guided by the prevailing academic regulations and modular scheme handbooks produced by Registry.

An external examiner is attached to the programme who acts as a critical friend. He/She attends the assessment board and scrutinises student work and marking to ensure that standards have been maintained at an apposite level.

Each year the programme leader completes a Programme Enhancement Plan which is approved by the Programme Management Board and Faculty Academic Committee.

The student voice is heard via student representatives on the Programme Board and the Staff Student Consultative Committee. Feedback from students is gathered by end of module questionnaires and programme questionnaires.

The programme is subject to a periodic review in line with University requirements.

Course Handbook Descriptor