

# BSc (Hons) Web Technologies

## *Programme Specification*

### **Primary Purpose**

Course management and quality assurance.

### **Secondary Purpose**

Detailed information for students, staff and employers. Current students should refer to the related Course Handbook for further detail.

### **Disclaimer**

The University of Portsmouth has checked the information given in this Programme Specification. We will endeavour to deliver the course in keeping with this Programme Specification; however, changes may sometimes be required arising from annual monitoring, student feedback, review and update of units and courses. Where this activity leads to significant changes to units and courses, there will be prior consultation of students and others, wherever possible, and the University will take all reasonable steps to minimize disruption to students. It is also possible that the University may not be able to offer a unit or course for reasons outside of its control, for example; the absence of a member of staff or low student registration numbers. Where this is the case, the University will endeavour to inform applicants and students as soon as possible. Where appropriate, the University will facilitate the transfer of affected students to another suitable course.

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## Contents

Contents .....	1
Course Details .....	2
1. Named Awards.....	2
2. Course Code (and UCAS Code if applicable).....	2
3. Awarding Body .....	2
4. Teaching Institution .....	2
5. Accrediting Body .....	2
6. QAA Benchmark Groups .....	2
7. Document Control Information.....	2
8. Effective Session.....	2
9. Author .....	2
10. Faculty.....	2
11. Department .....	2
Curriculum .....	2
12. Educational Aims.....	2
13. Reference Points.....	3
14. General Learning Outcomes.....	4
15. Learning Outcomes .....	5
A. Knowledge and Understanding of:.....	5
B. Cognitive (Intellectual or Thinking) Skills, able to: .....	6
C. Practical (Professional or Subject) Skills, able to: .....	6
D. Transferable (Graduate and Employability) Skills, able to: .....	6
16. Learning and Teaching Strategies and Methods.....	6
17. Assessment Strategy.....	7
18. Course Structure, Progression and Award Requirements.....	7
19. Employability Statement.....	7
Course Management .....	8
20. Support for Student Learning.....	8
21. Admissions Criteria.....	8
A. Academic Admissions Criteria .....	8
B. Disability .....	8
22. Evaluation and Enhancement of Standards and Quality in Learning and Teaching .....	8
A. Mechanisms for Review and Evaluation .....	8
B. Responsibilities for Monitoring and Evaluation.....	9
C. Mechanisms for Gaining Student Feedback .....	9
D. Staff Development Priorities.....	9
23. Assessment Regulations .....	9
24. Role of Externals .....	9
25. Indicators of Standards and Quality.....	10
A. Professional Accreditation/Recognition.....	10
B. Periodic Programme Review (or equivalent).....	10
C. Quality Assurance Agency .....	10
D. Others .....	10
26. Further Information .....	10

## **Course Details**

### **1. Named Awards**

Web Technologies

### **2. Course Code (and UCAS Code if applicable)**

C2187S (G492)

### **3. Awarding Body**

University of Portsmouth

### **4. Teaching Institution**

University of Portsmouth

### **5. Accrediting Body**

BCS

### **6. QAA Benchmark Groups**

Computing Benchmark

### **7. Document Control Information**

Release 1.9 Jan 2017

### **8. Effective Session**

2018-19

### **9. Author**

Dr R Boakes, Mrs S Cousins, Mrs A Wilson

### **10. Faculty**

School of Computing

### **11. Department**

School of Computing

## **Curriculum**

### **12. Educational Aims**

The programme aims to equip students for employment as Web developers, particularly in environments where competence in web infrastructure, client/server programming and databases are required.

In addition, the course aims to:

- Provide a challenging, stimulating and self-rewarding study environment.

- Provide a framework whereby individual study paths may be forged based on choice of a range of options.
- Enable students to broaden their studies by including study units from outside their discipline as substitutes for degree option choices.
- Develop a range of key skills by means of opportunities provided in the study units.
- Accommodate student needs in relation to maximising their career potential by enabling them to develop knowledge, understanding and skills in their chosen subject area.
- Promote career aspirations by including study topics on general professional practice and skills
- Provide the opportunity to undertake an industrial placement year.

### 13. Reference Points

The programme and learning outcomes have been developed taking into account:

- University of Portsmouth Curricula Framework Document (2014)
- The scholarship and research expertise of academic members of staff
- QAA UK Quality Code for Higher Education
- Framework for Higher Education Qualifications (FHEQ)
- National Qualifications Framework
- QAA Subject Benchmark Statements in Computing
- Code of Practice for Work-based and Placement Learning (October 2010)
- University of Portsmouth undergraduate curriculum
- University policy on Key Skills

The Computing 2016 Subject Benchmark states (section 2.): there are key ideas which constitute a certain ethos that can be expected to characterise an honours degree programme in computing and specifically an Information Systems and Information Technology programmes:

- i. (2.1) The Computing discipline is evolving at a rapid rate, touching on all aspects of life. Computing delivers solutions to problems and drives technological, economic and social progress.
- ii. (2.3) Computing graduates apply their understanding, skills, knowledge and experience to create social and economic value by building secure, reliable and usable systems.

Subject Specific statements include

(2.11) Software Engineering

Includes:

- the problem definition, specification (including formal specification), design, implementation and maintenance, software testing
- security and safety-critical systems
- the understanding of the range of possible options and an appreciation of design trade-offs.

(2.12) Information Technology

- is concerned with the selection and application of software and hardware
- Integration of components to provide solutions in a variety of application domains
- Risk, cybersecurity and service management aspects of IT systems

(2.13) Information Systems

- Is concerned with the modelling, codification and storage of data and information for later retrieval. It includes:

- Data management, databases, information modelling, indexing and searching. Systems analysis, systems lifecycle and interactions between information systems and other socio-technical systems, including societal and environmental issues. Generally these are expressed in the ability to construct systems that acquire, codify, store, transform and transmit information

## 14. General Learning Outcomes

### Level 4

Certificates of Higher Education are awarded to students who have demonstrated:

- knowledge of the underlying concepts and principles associated with their area(s) of study, and an ability to evaluate and interpret these within the context of that area of study
- an ability to present, evaluate and interpret qualitative and quantitative data, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of their subject(s) of study

Typically, holders of the qualification will be able to:

- evaluate the appropriateness of different approaches to solving problems related to their area(s) of study and/or work
- communicate the results of their study/work accurately and reliably, and with structured and coherent arguments
- undertake further training and develop new skills within a structured and managed environment

And holders will have:

- the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility

### Level 5

Diplomas in Higher Education are awarded to students who have demonstrated:

- knowledge and critical understanding of the well-established principles of their area(s) of study, and of the way in which those principles have developed
- ability to apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context
- knowledge of the main methods of enquiry in the subject(s) relevant to the named award, and ability to evaluate critically the appropriateness of different approaches to solving problems in the field of study
- an understanding of the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge

Typically, holders of the qualification will be able to:

- use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis
- effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively
- undertake further training, develop existing skills and acquire new competences that will enable them to assume significant responsibility within organisations

And holders will have:

- the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making

## Level 6

Bachelor's degrees/Bachelor's degrees with honours are awarded to students who have demonstrated:

- a systematic understanding of key aspects of their field of study, including acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of defined aspects of a discipline
- an ability to deploy accurately established techniques of analysis and enquiry within a discipline
- conceptual understanding that enables the student:
  - to devise and sustain arguments, and/or to solve problems, using ideas and techniques, some of which are at the forefront of a discipline
  - to describe and comment upon particular aspects of current research, or equivalent advanced scholarship, in the discipline
- an appreciation of the uncertainty, ambiguity and limits of knowledge
- the ability to manage their own learning, and to make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to the discipline)

Typically, holders of the qualification will be able to:

- apply the methods and techniques that they have learned to review, consolidate, extend and apply their knowledge and understanding, and to initiate and carry out projects
- critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make judgements, and to frame appropriate questions to achieve a solution - or identify a range of solutions - to a problem
- communicate information, ideas, problems and solutions to both specialist and non-specialist audiences

And holders will have:

- the qualities and transferable skills necessary for employment requiring:
  - the exercise of initiative and personal responsibility
  - decision-making in complex and unpredictable contexts
- the learning ability needed to undertake appropriate further training of a professional or equivalent nature

## **15. Learning Outcomes**

### **A. Knowledge and Understanding of:**

- A.1 The fundamentals and underlying theory of Computer Science and Web Engineering in programming, computer and web architectures, networks and communications technology (H, S, CI, P, T).
- A.2 The tools used for the construction and documentation of web sites, web applications and eCommerce applications with particular emphasis on understanding the whole process involved in the effective deployment of solutions practical problems from specification to implementation and beyond. (H, S).
- A.3 Data structures, their nature and use in problem solving especially in database environments (S, T).
- A.4 The theory, development and use of database management systems, linkage, data integrity and system recovery (S, T).
- A.5 The need for the efficient as well as effective project management of the process of web applications development and maintenance (S, P).
- A.6 The legal, social, ethical and professional issues involved in the development of web technologies as well as their industrial and commercial contexts (S).

## **B. Cognitive (Intellectual or Thinking) Skills, able to:**

- B.1 Apply general abilities of an intellectual, analytical, creative and problem-solving nature (S, P).
- B.2 Demonstrate knowledge and understanding of essential facts, concepts and principles and theories relating to the development of computer applications (H, CI).
- B.3 Apply appropriate methods and techniques for the specification, design, implementation and evaluation of web-based systems to the solution of web application problems (S, CI, and P).
- B.4 Recognise the legal, social, ethical and professional issues involved in the exploitation of computer technology and be guided by the adoption of appropriate professional ethical and legal practices (S).
- B.5 Develop critical insight into society's increasing dependence on web-based systems and how professional conduct must evolve to cope (S).
- B.6 Develop critical skills with regard to literature searching, appraising and evaluating from a variety of sources and synthesising the results (CI, P).
- B.7 Plan, manage, undertake and report on a significant final year project related to the field of Web Technologies (S).

## **C. Practical (Professional or Subject) Skills, able to:**

- C.1 Select or create appropriate, effective and productive methods and tools for the successful construction and timely delivery of valid computer-based websites and web applications (S, P).
- C.2 Apply industry standard software and hardware proficiently to produce robust solutions (H, S, and P).
- C.3 Competently create and use SQL-driven relational databases (S, CI).
- C.4 Programming skills in a variety of programming environments and languages (S, CI).
- C.5 Have an appreciation of the interrelationship of theory and practice, gained by practical work experience from the placement year (sandwich degree only) (S, P, and T).
- C.6 Develop an awareness of emerging technologies, standards and paradigms, and prescience of their potential applications and implications (S, CI, and P).
- C.7 Apply professional codes of conduct and appreciate the ethical considerations that underpin them (S, P).

## **D. Transferable (Graduate and Employability) Skills, able to:**

- D.1 Communication – Communicate effectively in written, electronic and oral form and in appropriate forms of presentation (S, P).
- D.2 Reading – Read and understand complex documents related to user requirements, website development and maintenance (S, CI, and P).
- D.3 Information Technology – Use information systems to handle complex data, simulate solutions and to assist with design and testing (S, P).
- D.4 Application of Number – Competently deal with numerical data as might be found in typical business orientated applications (S).
- D.5 Problem Solving – Assess problem domains and formulate appropriate problem-solving strategies and to develop viable solutions (S, P).
- D.6 Improving Own Learning – planning self-learning and improving performance as the foundation for on-going professional development (P).
- D.7 Working With Others – Ability to professionally network in a team environment to achieve goals, but nevertheless retain distinct individuality and recognise the different roles within a team and different ways of organising teams (S, P).

## **16. Learning and Teaching Strategies and Methods**

Core knowledge is acquired mainly through lectures and tutorials. Individual learning is supported by directed reading, study guides, tutorial and worked examples. Additionally, design exercises will be used.



These skills are developed by appropriate use of material where heuristic problem solving ability can be exploited. Professional conduct issues are taught in lectures and developed in group work and by means of role playing exercises as well as in the industrial/commercial placement. Individual and group reports will be used to develop the necessary intellectual skills needed to plan and write concise and lucid reports.

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The emphasis is generally on building competent skills and confidence in their use coupled with the ability to select and apply appropriate skills. The professional training will be formalised and extended by the placement year, and applied holistically within the workplace during that year.

## **17. Assessment Strategy**

Testing of theoretical knowledge is largely through examinations offered in several styles. Major software related activities are assessed by observation or reports based on completion of extended programmes of work set either individually or to small groups.

Use is made of examinations, offered in several styles as well as reports for assessing intellectual and analytical skills.

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The ability to work in teams will be assessed through group work and reports and marked by the tutor or by peer observation. Individuality will be assessed by presentations and individual assignment and reports. Mathematical and IT related skills will be demonstrated and assessed within the course curriculum. The placement experience will be assessed by a supervisor visit and report, by manager's report, placement diary and a final student written report.

## **18. Course Structure, Progression and Award Requirements**

See [Unit Web Search](#)<sup>1</sup> for full details on the course structure and units

This course is offered as a 3-year full-time or 4-year sandwich course. Students are required to successfully complete 360 credits for the award of an Honours degree. Standard University rules apply. The regulations must be consulted for a full description of exit awards.

The course consists of a mix of lectures, practical work and final year project. It makes extensive use of the School's computer suites and software. The course consists of 20/40 credit taught units plus a 40 credit final year project. Each year consists of 120 credits. A 20 credit unit is expected to require 200 hours of total study of which typically 36 - 48 hours would have formal staff contact and there would be additional practical work. In the final year of the course there is a 26-week, 40-credit, project. Scheduled small group and individual tutorials ensure that contact is maintained between students and their personal tutors. A language unit may be taken in the 2nd year.

## **19. Employability Statement**

The course as a whole is highly career-focused, with the technical content and opportunities to develop analytical and design skills being the major factors contributing to this. Practical work uses hardware and software systems that are widely used in industry and this familiarity eases the transfer of graduates into employment. The content of the course is informed by discussions with our Industrial Advisory Board. The Department has an Industrial Liaison Officer whose brief is to maintain contact with employers, although most staff maintain good industrial and research links.

<sup>1</sup> [www.port.ac.uk/unitwebsearch](http://www.port.ac.uk/unitwebsearch)



The industrial placement, which is usually taken between the second and final year of a sandwich course is strongly recommended, and may include overseas industrial placements.

## **Course Management**

### **20. Support for Student Learning**

- The Course is managed by a Course Leader
- Extensive induction programme introduces the student to the University and their course
- Each student has a personal tutor, responsible for pastoral support and guidance
- University support services include careers, financial advice, housing and counselling
- The Academic Skills Unit (ASK)
- The Additional Support and Disability Advice Centre (ASDAC)
- Excellent library facilities
- Student course and unit handbooks provide information about the course structure and University regulations
- Feedback is provided for all assessments
- Personal Development Planning (PDP) for all awards

### **21. Admissions Criteria**

#### **A. Academic Admissions Criteria**

Standard University rules apply but in addition a UCAS tariff of 260+ is expected made up of at least two A2 passes in any subjects. Other qualifications are accepted including Vocational 'A' levels, BTEC, access courses and in due course, 14-19 diplomas.

Direct Entry to year 2 will be considered on a case by case basis, typically students will have to demonstrate that they have met the Learning Outcomes for year 1 of the course.

Direct Entry to year 3 is not recommended but would exceptionally be considered if the applicant can demonstrate that they have met the Learning Outcomes for year 1 and 2 of the course and have significant experience of client-server programming.

#### **B. Disability**

The University makes no distinction in its admissions policy with regard to disability and will endeavour to make all reasonable adjustments in order to make it possible for students to study at Portsmouth on a course of their choice. We also seek to extend participation in the University to groups that have traditionally been under-represented in further and higher education such as those with disabilities or special needs. Further information on our disability policy is available on our website <http://www.port.ac.uk/departments/disability>

### **22. Evaluation and Enhancement of Standards and Quality in Learning and Teaching**

#### **A. Mechanisms for Review and Evaluation**

- Head of Department's Annual Standards and Quality Evaluative Review to Pro Vice-Chancellor (Academic) and Faculty Executive.
- Unit and Course Level student feedback considered at Board of Studies.
- Unit Assessment Board consideration of student performance for each programme.
- Annual Standards and Quality Reports to Board of Studies, including consideration of Subject and Award External Examiner Reports.
- Student Representatives and Student/Staff Consultative Committees.
- Annual Staff Appraisal.

- Peer Teaching Observation.
- Faculty Learning and Teaching Committee.
- British Computer Society (BCS) course accreditation
- The work placement is monitored by the placement co-ordinators and by visits from a personal tutor. Before placing students, the suitability of the placement environment is determined with respect to it enabling the programme learning outcomes to be achieved and its compliance with Health & Safety issues.

#### **B. Responsibilities for Monitoring and Evaluation**

- Unit Co-ordinators for unit content and delivery.
- Course Leader for day-to-day running of course.
- Board of Studies with overall responsibilities for operation and content of course.
- Head of Department.
- Associate Dean (Academic).
- Associate Dean (Students).
- Quality Assurance Committee.
- Unit, Award and Progression Board of Examiners.

#### **C. Mechanisms for Gaining Student Feedback**

- Student Representation on Board of Studies
- Student Staff Liaison Committees
- Unit and Course level student questionnaires

#### **D. Staff Development Priorities**

- Academic staff undertake activities related to research, scholarship, teaching and learning and student support and guidance.
- Annual staff appraisals match development to needs.
- Managers undertake a variety of management development programmes.
- All academic staff are encouraged to seek Higher Education Academy membership.
- Academic staff new to teaching required to undertake Teaching Induction Programme (TIPs)
- Support Staff are encouraged to attend short courses in areas such as minute taking, and specific IT packages.

### **23. Assessment Regulations**

The current University of Portsmouth academic regulations will apply to this programme (see [Assessment and Regulations<sup>2</sup>](#)).

### **24. Role of Externals**

Subject External Examiners who will:

- Oversee unit assessment and usually attend Unit Assessment Boards
- Review unit assessment strategy
- Sample assessment artefacts
- Present report to Unit Assessment Boards

Award External Examiners (usually also a Subject External Examiner) who will:

- Oversee and attend Award/Progression Boards
- Scrutinise and endorse the outcomes of assessment
- Ensure that the standard of the award is maintained at a level comparable with that of similar awards elsewhere in the United Kingdom

## 25. Indicators of Standards and Quality

### A. Professional Accreditation/Recognition

The course is accredited by the BCS; fulfilling academic requirements for CITP and partially meeting CEng and CSci.

### B. Periodic Programme Review (or equivalent)

SoC Undergraduate Periodic Programme Review March 2015

### C. Quality Assurance Agency

QAA Higher Education Review, March 2015, judgements about standards and quality meet UK expectations (*for full report see [Higher Education Review of the University of Portsmouth, March 2015](#)*<sup>3</sup>).

### D. Others

The subject area has two National Teaching fellowships.

## 26. Further Information

Further information may be found in:

- Student Handbook
- University of Portsmouth Curriculum Framework Document
- University of Portsmouth Prospectus
- [University of Portsmouth](#)<sup>4</sup> and [School of Computing](#)<sup>5</sup> websites

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[www.qaa.ac.uk/en/ReviewsAndReports/Documents/University%20of%20Portsmouth/University-of-Portsmouth-HER-15.pdf](http://www.qaa.ac.uk/en/ReviewsAndReports/Documents/University%20of%20Portsmouth/University-of-Portsmouth-HER-15.pdf)

4 [www.port.ac.uk/](http://www.port.ac.uk/)

5 [www.port.ac.uk/school-of-computing/](http://www.port.ac.uk/school-of-computing/)