

**Department of Computer Science and Information
Systems**

**MSc/PGDip in Computer Science
Programme Arrangements
2016–2017**

Version: September 13, 2016

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1 General Information

1.1 Important Contacts

Programme Director:	Szabolcs Mikulás (szabolcs@dc.bbk.ac.uk)
Programme Administrator:	Liam Simmonds (pgadmin@dc.bbk.ac.uk)
Admissions Tutor:	Sergio Gutierrez-Santos (sergut@dc.bbk.ac.uk)
Projects Tutor:	Oded Lachish (oded@dc.bbk.ac.uk)

1.2 Student Support

Every student is allocated a personal tutor in the first weeks of the programme. The personal tutor is someone students can contact to discuss any problems of a non-academic nature. These may relate to special needs or personal problems that may affect the student's academic performance. The Department also has a disability officer whom students can contact.

Academic problems should first be addressed to the lecturer concerned. If the problem is not resolved or it does not relate to a specific module, then the Programme Director should be contacted.

On the College's MyBirkbeck site

<http://www.bbk.ac.uk/mybirkbeck>

students can find more details on

- information and advice
<http://www.bbk.ac.uk/mybirkbeck/aig>
- student support services
<http://www.bbk.ac.uk/mybirkbeck/services>
- student guides
<http://www.bbk.ac.uk/mybirkbeck/guides>

It is expected that students familiarise themselves with these pages so that they are aware of the services and regulations.

The School of Business, Economics and Informatics has Learning Co-ordinators. Their role is to support students in their studies. They can offer help and support on a variety of topics ranging from writing skills to basic maths. See

<http://www.bbk.ac.uk/business/current-students/learning-co-ordinators>

for details.

1.3 Additional Information

More detailed and updated information about the programme is available from the

- internet page
<http://www.dcs.bbk.ac.uk/courses/msccs/>
- intranet page (for enrolled students)
http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_CS_Intranet

It is your responsibility to familiarise yourself with the contents of both of this booklet as well as the programme's web site, and to consult the web site on a regular basis, since additional information will be posted there during the year. You should also read your College email on a regular basis.

2 Important Dates

2.1 Introductory Talks

The programme will kick off with introductory talks to new students:

- Part-time students: 18:00, Thursday, 29 September 2016 (MAL 404);
- Full-time students: 11:00, Monday, 3 October 2016 (MAL 403).

These will include a short hands-on introduction to the departmental computer system. There will also be short presentations by representatives of the library and the disability office.

2.2 Term Dates

Lectures will commence in the week starting on Monday, 3 October 2016. The teaching (i.e. not including exams and project) covers two terms of eleven weeks each (autumn and spring term). The summer term is given over to revision (including revision lectures), exams, and the project.

- Autumn term: Monday, 3 October 2016 – Friday, 16 December 2016
- Spring term: Monday, 9 January 2017 – Friday, 24 March 2017
- Summer term: Monday, 24 April 2017 – Friday, 7 July 2017

See <http://www.bbk.ac.uk/about-us/term-dates> for the College holiday closing times.

Students should attend lectures during term time as shown in the timetables in Section 3.2. If students are unable to attend lectures, they should arrange with lecturers or fellow-students to obtain copies of any material distributed in class.

Any student who decides to withdraw from the programme should inform the Programme Administrator, in writing or by email. Students who simply stop turning up for lectures without formally withdrawing from the programme will still be held liable for fees.

It is especially important for international students that they inform the department about any absence, see

<http://www.bbk.ac.uk/management/current-students/overseas-students>

3 Syllabus and Timetables

3.1 Syllabus

We give a general overview of the content of the programme here; detailed description of the individual modules is in the next section.

3.1.1 Compulsory Modules

- Programming in Java — PiJ (30 credits)
- Fundamentals of Computing — FoC (15 credits)
- Information Systems — IS (15 credits)
- Computer Systems — CS (15 credits)
- Data and Knowledge Management — DKM (15 credits)
- Software Design and Programming — SDP (15 credits)
- MSc Computer Science Project (60 credits)

3.1.2 Optional Modules

Students also have to choose one optional module from the following list.

- Data Warehousing and Data Mining — DWDM (15 credits)
- Information and Network Security — INSEC (15 credits)
- Information Retrieval and Organisation — IRO (15 credits)
- Internet and Web Technologies — IWT (15 credits)
- A 15-credit, level 7 module offered on the Advanced Computing Technologies MSc programme. For a detailed description of these modules and the timetable, see the following web page:

<http://www.dcs.bbk.ac.uk/courses/mscact/>

Please note that this programme runs on a different timetable, so you can only take these modules if you are able to fit them into your schedule. If you are interested in taking a module from the Advanced Computing Technologies MSc programme as an option, please discuss this with the MSc CS Programme Director.

Optional module availability is subject to timetabling constraints and student demand. In the event that an optional module is over-subscribed, available places will be allocated on a first-come, first-served basis determined by the date you return your module choice form to the Programme Administrator.

3.2 Timetables

The teaching venues will be announced online: <http://www.dcs.bbk.ac.uk/courses/>
For an overview of the teaching venue locations, please refer to

<http://www.bbk.ac.uk/mybirkbeck/guides/help/class-information/>

Below is the timetable for the modules. Note that occasionally there might be changes (e.g. swapping of lectures between modules, or additional tutoring sessions). Please contact regularly the web pages of the modules for up-to-date information.

3.2.1 Part-time Students Year 1

In the first year PT students take only compulsory modules as follows.

First year		
Term 1 (Autumn)	18:00–19:20	19:40–21:00
Mon	PiJ	PiJ
Wed	FoC	IS

First year		
Term 2 (Spring)	18:00–19:20	19:40–21:00
Mon	PiJ	PiJ
Wed	IS	FoC
Thu	CS	CS

3.2.2 Part-time Students Year 2

In the second year PT students follow the compulsory modules below, and also one optional module — see Section 3.2.5 below.

Second year		
Term 1 (Autumn)	18:00–19:20	19:40–21:00
Thu	DKM	DKM
Fri, 3rd week only	MSc Project	MSc Project

Second year		
Term 2 (Spring)	18:00–19:20	19:40–21:00
Thu	SDP	SDP

3.2.3 Full-time Students

FT students follow the compulsory modules below, and also one optional module — see Section 3.2.5 below.

Term 1 (Autumn)	13:30–15:00	15:30–17:00
Mon	PiJ	PiJ
Tue	DKM	DKM
Wed	PiJ	PiJ
Thu	IS	FoC
Fri, 3rd week only	MSc Project	MSc Project

Term 2 (Spring)	13:30–15:00	15:30–17:00
Tue	SDP	SDP
Wed	CS	CS
Thu	IS	FoC

3.2.4 Day-release Part-time Students

Day-release part-time students combine attending lectures with the full-time students during the day and with the part-time students during the evening. Here is a suggestion.

First year	
Mon 18:00–21:00	PiJ
Thu 13:30–17:00 (term 1)	IS, FoC
Thu 13:30–21:00 (term 2)	IS, FoC, CS

Second year	
Tue 13:30–17:00 (term 1)	DKM
Tue 13:30–17:00 (term 2)	SDP
Fri 18:00–21:00 (term 1), 3rd week only	MSc Project

Alternatively, students can attend the lectures in any combination of the tables above as long as all modules are attended in the correct year (PiJ, FoC, IS, and CS in year 1 and the remaining modules in year 2).

3.2.5 Optional Modules

Here are the times for the optional modules. You have to choose only one of them.

Mon 18:00–21:00 (term 1)	INSEC
Tue 18:00–21:00 (term 2)	IRO, IWT
Wed 18:00–21:00 (term 2)	DWDM

4 Module Descriptions

4.1 Programming in Java (PiJ)

Teaching Staff

Sergio Gutierrez-Santos (module coordinator) and Keith Mannock.

Online material

At the college Moodle server (i.e. at <http://moodle.bbk.ac.uk/>).

Aims

A substantial part of the first half of the MSc course is devoted to learning how to program. Assignments are set as part of this module and all students are required to complete them. Students may do the assignments on their own computers or on one of the departmental computers.

Syllabus

The module is delivered in flipped mode using problem solving groups and practical activities. Practical work is in the form of tutorials, programming exercises and assessed coursework. Students will develop software applications to reinforce most of the topics presented in the lectures.

- Variables, types, initialization, comments
- Flow control: branches, loops
- Source code version control
- Simple and complex data types: primitive types, strings, (multi-dimensional) arrays
- Introduction to classes and objects: initialization, methods, and constructors
- Data structures: lists, stacks, trees, maps (and iterators)
- Software testing and testing-driven development
- Generics
- More on object orientation: inheritance, polymorphism, overloading
- Recursion
- Exception Handling
- Input/Output
- Network programming
- Concurrent programming
- Features of Java 8

Assessment

By 3-hour written examination and practical coursework, weighting 80% and 20%, respectively.

Reading

- Big Java by Cay S. Horstmann, John Wiley & Sons; 2010, ISBN 978-0-470-55309-1.
- Objects First with Java: A Practical Introduction Using BlueJ by David J. Barnes and Michael Kolling, Pearson Education; 4th Edition, 2008, ISBN 0137005628.
- Introduction to Programming Using Java, Sixth Edition by David J. Eck, 2011 (online textbook, <http://math.hws.edu/javanotes/>).
- Thinking in Java by Bruce Eckel, Prentice Hall, 4th Edition, 2006, ISBN 978-0131872486 (also freely available at <http://www.mindview.net/Books/TIJ/>).

4.2 Fundamentals of Computing (FoC)

Teaching Staff

Michael Zakharyashev (module coordinator), Trevor Fenner

Online material

<http://www.dcs.bbk.ac.uk/~michael/foc/foc.html>

<http://www.dcs.bbk.ac.uk/~trevor/FoC/focTF.html>

Aims

Discrete mathematics, mathematical logic, and the related fundamental areas of data structures and algorithms lie at the heart of any modern study of Computer Science. Any understanding of how computers operate and how to use them effectively and efficiently, in terms of either their hardware or software, inevitably involves numerous mathematical concepts.

This module introduces and develops mathematical notions, data structures and algorithms that are used in various areas of Computer Science, in particular those required for other modules of the programme.

Syllabus

- Digital logic. Arithmetic for computers.
- Elements of set theory.
- Finite state machines (automata). Nondeterministic automata.
- Regular languages.
- Context-free languages and pushdown automata.
- Turing machines. Universal Turing machines. Undecidable problems.
- Data structures: representations and operations.
- Lists, stacks, queues and dequeues.
- Trees, forests, binary trees.
- Tree traversal and other operations; binary search trees.
- Organisation of disk storage; methods of file organisation; B-trees.
- Design and analysis of algorithms. Sorting and searching.

Assessment

By 3-hour written examination and coursework exercises, weighting 80% and 20% respectively.

Reading

- D. Patterson and J. Hennessy, Computer Organization and Design: The Hardware/Software Interface. Morgan Kaufmann; 3 edition, 2007.
- E. Kinber and C. Smith, Theory of Computing. A gentle introduction. Prentice Hall, 2001.

4.3 Information Systems (IS)

Teaching Staff

Brian Gannon

Online material

At the college Moodle server (i.e. at <http://moodle.bbk.ac.uk/>).

Aims and Outline

The primary aim of the module is to help students understand how information and communications technologies are deployed and to make informed professional decisions about IS development in fast changing socio-technical environments. This includes understanding how to use information processing constructs including files and data schemata, programs and other coded units, and the contexts to which they will be fitted. A subsidiary aim is to introduce students to some of the practical aspects associated with a career as an IS professional, and to describe key social and organisational aspects of enterprise computing.

The module describes approaches, processes, methodologies and techniques commonly used for large-scale information systems development. It covers the systems development life cycle (SDLC), including project initiation, analysis, design and implementation, addressing key aspects and techniques at each stage, such as the use of class and object diagrams. Several project methodologies are described, including Agile (Scrum) methodology. The module also incorporates insights into professional and legal issues surrounding Information Systems development.

Syllabus

- Theories of Information Systems
- The Information Systems Development Life Cycle
- Project Initiation - Identification and Selection
- Requirements Analysis & High Level Design
- Detailed design, including Architecture, DB design and UI design
- IS implementation
- Agile methodologies
- IS in everyday life
- IS contracts and legal issues
- Data Protection, Freedom of Information and Intellectual Property Rights
- Computer Misuse and Information Surveillance

Assessment

By 2-hour written examination and in-class tests, weighting 80% and 20%, respectively.

Reading

- Tegarden, Dennis and Wixom, Systems Analysis and Design with UML, International Student Version, latest edition.
- Other supplementary readings will be advised.

4.4 Computer Systems (CS)

Teaching Staff

Szabolcs Mikulás

Online material

<http://www.dcs.bbk.ac.uk/~szabolcs/compsys.html>

Aims

To learn the basics of computer architecture and organisation, and the role and mechanism of operating systems.

Syllabus

1. Introduction: Computer architecture (CA) and Operating system (OS) overview
2. Processors
3. Processes and threads
4. Concurrency
5. Memory management
6. I/O and file systems
7. Protection and security
8. Distributed and parallel processing

Assessment

By 2-hour written examination and coursework, weighting 90% and 10%, respectively.

Reading

- Textbook: W. Stallings, Operating Systems, Internals and Design Principles, Prentice Hall, 5th (or later) edition, 2005.
- Recommended reading:
 - W. Stallings, Computer Organization and Architecture: Designing for Performance, Prentice Hall, 7th (or later) edition, 2006.
 - A.S. Tanenbaum, Modern Operating Systems, Prentice Hall. 2nd (or later) edition, 2001.

4.5 Data and Knowledge Management (DKM)

Teaching Staff

Nigel Martin

Online material

<http://www.dcs.bbk.ac.uk/~nigel/teaching/dkm/>

Aims and Outline

To study the principles and application of data and knowledge management technology.

This module covers the principles and application of data and knowledge management technologies and languages including SQL. Students study the use of these in leading commercial database management systems as well as emerging approaches to data management.

Syllabus

- Database management software: origins and objectives.
- The relational model: algebraic and logical foundations.
- Relational algebra and calculus.
- SQL: data manipulation, host language support for SQL.
- Transaction management: recovery, concurrency.
- Relational database theory: dependencies, normal forms.
- SQL data definition, other features.
- DBMS architectures and implementations.
- DBMS storage and indexing.
- Query optimisation.
- Enhanced database capabilities: procedural extensions to SQL, database triggers, deductive databases, object DBMS.
- Non-relational DBMS, object databases, NoSQL databases.
- Distributed databases, distributed architectures and connectivity.
- Databases and the Web, Java database programming - JDBC, SQLJ, databases and XML.
- Database research topics.

Assessment

By 2-hour written examination and practical coursework, weighting 90% and 10% respectively.

Reading

- Raghu Ramakrishnan and Johannes Gehrke, Database Management Systems Third Edition, McGraw Hill, 2003, ISBN 0072465638.

4.6 Software Design and Programming (SDP)

Teaching Staff

Keith Mannock

Online material

<http://www.dcs.bbk.ac.uk/~keith/sdp16/>

Aims

The main aim of the module is to provide students with the necessary skills for developing software utilising the object-oriented and functional programming paradigms through Java 8 and Scala.

Syllabus

A selection from the following topics:

- The object model and how it is realised in various object-oriented languages (e.g., Java, Scala, Ruby, C++, ...)
- Further development the ideas of inheritance and polymorphism
- Language features: inner classes, closures, higher-order functions, meta-objects, etc.
- The functional paradigm. Polymorphic types, static typing and type inference. Recursion and induction. List processing. Higher-order functions. Eager and lazy evaluation. Imperative features. Signatures, structures, functors
- An introduction to Test Driven Design (TDD) and Behavioural Driven Design (BDD)
- The use of an Integrated Development Environment (IDE) for software development: e.g., editing, debugging, compilation, etc.
- Modularity, versioning, packaging, and managing the build process
- Design Patterns and Anti-Patterns and their application to software design
- The SOLID (Single responsibility, Open-closed, Liskov substitution, Interface segregation and Dependency inversion) approach to object oriented programming and design
- Code refactoring and analysis
- Concurrency and agents/actors

Assessment

By 2-hour written examination and coursework exercises, weighting 80% and 20% respectively.

Reading

Through extensive course notes and example code. See the module webpage for details.

4.7 Data Warehousing and Data Mining (DWDM)

Teaching Staff

Nigel Martin

Module URL

<http://www.dcs.bbk.ac.uk/~nigel/teaching/dwdm/>

Aims and Outline

To study advanced aspects of data warehousing and data mining, encompassing the principles, research results and commercial application of the technologies.

This module covers the organisation, analysis and mining of large data sets to support business intelligence applications. Students study the principles and commercial application of the technologies, as well as research results and emerging architectures underpinning the analysis and mining of "big data".

Teaching Staff

Nigel Martin

Module URL

<http://www.dcs.bbk.ac.uk/~nigel/teaching/dwdm/>

Syllabus

- Data warehousing requirements.
- Data warehouse conceptual design.
- Data warehouse architectures.
- Data warehouse logical design: star schemas, snowflake schemas, fact tables, dimensions, measures.
- OLAP architectures, OLAP operations. SQL extensions for OLAP.
- Data warehouse physical design: partitioning, parallelism, compression, indexes, materialized views, column stores.
- Data warehouse construction: data extraction, transformation, loading and refreshing. Warehouse metadata. Continuous ETL.
- Data warehouse architecture trends. MapReduce and warehouse architectures: Pig, Hive, Spark.
- Data mining concepts, tasks and algorithms.
- Data mining technologies and implementations. Techniques for mining large data sets, stream mining, architecture trends, standards, products.
- Research trends in data warehousing and data mining.

Assessment

By 2-hour written examination and practical coursework. The final module mark will be the exam mark attained. Passing the practical coursework component will be compulsory in order to pass the module overall.

Reading

- R. Ramakrishnan, J. Gehrke, Database Management Systems (3rd ed.), McGraw Hill, 2003, ISBN 0-07-246563-8.
- M. Golfarelli, S. Rizzi, Data Warehouse Design: Modern Principles and Methodologies, McGraw Hill, 2009, ISBN 978-0-07-161039-1.
- J. Celko, Joe Celko's Analytics and OLAP in SQL, Morgan Kaufmann, 2006, ISBN 978-0-12-369512-3.
- J. Han, M. Kamber, J Pei, Data Mining Concepts and Techniques (3rd ed.), Morgan Kaufmann, 2011, ISBN 978-0-12-381479-1.
- Research papers will be distributed to students; students will also be directed to Web resources on the subject.

4.8 Information and Network Security (INSEC)

Teaching Staff

David Weston

Online material

<http://www.dcs.bbk.ac.uk/~dweston/>

Aims

Information security is about protecting information (and information systems) against unauthorised access and tampering. Avoiding security breaches has a high priority for organisations storing and handling confidential data.

The main aim of this module is to provide broad coverage of the field of information security. This course covers the technical as well as the management side of security in information systems. Despite being an essential part of security, technical methods such as cryptography are not enough to guarantee a high level of security. They have to be embedded into a wider context in order to make them more effective. Users of technology have to understand the underlying principles and follow certain policies to avoid security breaches. This module introduces the fundamental approaches to security engineering and includes a detailed look at some important applications.

Syllabus

- Overview of Information Security
- Access Control Matrix Model
- Security Policies
- Social Engineering
- Basic Cryptography
- Identity Management
- Access Control Mechanisms
- Confinement
- Assurance and Trust
- Network Intruders and Intrusion Detection
- Firewalls and Malicious Software
- Cryptographic Protocol Concepts
- Authentication
- Key Exchange
- Economics of Information Security

Assessment

Two-hour written examination (80%) and practical coursework (20%).

Reading

- Keith M. Martin, *Everyday Cryptography: Fundamental Principles and Applications*, 2012, ISBN 978-0-19-969559-1
- William Stallings, *Cryptography and Network Security* 5th edition, Pearson, 2010, ISBN 0136097049
- Matt Bishop, *Computer Security: Art and Science*, Addison-Wesley, 2002, ISBN 0201440997
- Ross Anderson, *Security Engineering* 2nd edition, John Wiley & Sons, 2008, ISBN 0470068523
- Bruce Schneier, *Applied Cryptography*, John Wiley & Sons, 1996, ISBN 0-471-11709-9

4.9 Information Retrieval and Organisation (IRO)

Teaching Staff

Dell Zhang (module coordinator), Mark Levene

Online material

<http://www.dcs.bbk.ac.uk/~dell/teaching/ir/>

Aims and Outline

The aim of this module is to introduce modern Information Retrieval (IR) concepts and techniques, from basic text indexing to advanced text mining and Web IR. Both theoretical and practical aspects of IR systems will be presented and the most recent issues in the field of IR will be discussed. This will give students an insight into how modern search engines work and are developed.

Due to the explosive growth of digital information in recent years, modern Information Retrieval (IR) systems such as search engines have become more and more important in almost everyone's work and life (e.g. see the phenomenal rise of Google). IR research and development are one of the hottest research areas in academia as well as industry. This module will convey the basic principles of modern IR systems to students.

Syllabus

- Boolean Retrieval
- The Term Vocabulary & Postings Lists
- Dictionaries & Tolerant Retrieval
- Index Construction & Compression
- Scoring, Term Weighting & the Vector Space Model
- Computing Scores in A Complete Search System
- Evaluation in Information Retrieval, Relevance Feedback & Query Expansion
- Probabilistic Information Retrieval
- Language Models for Information Retrieval
- Text Classification, Naive Bayes & Vector Space Classification
- Flat & Hierarchical Clustering
- Advanced Topics in IR

Assessment

By 2-hour written examination and practical coursework, weighting 80% and 20%, respectively.

Reading

- Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze, Introduction to Information Retrieval, Cambridge University Press, 2008, ISBN 0521865719.
<http://www-csli.stanford.edu/~hinrich/information-retrieval-book.html>

4.10 Internet and Web Technologies (IWT)

Teaching Staff

Peter Wood

Online material

<http://www.dcs.bbk.ac.uk/~ptw/teaching/IWT.html>

Aims

To provide students with an understanding of how network protocols work, particularly those used on the Internet, and the ability to present and manipulate information on the World Wide Web, with an emphasis on XML.

Syllabus

- Introduction to the Internet and its applications
- Web languages (e.g. HTML, XHTML, XML, JSON)
- Languages for defining Web document types (e.g. DTDs)
- Web query and transformation languages (e.g. XPath, XSLT)
- Client-side processing (e.g. using Javascript, DOM, jQuery)
- Server-side processing (e.g. using CGI, Perl and PHP)
- The transport layer (e.g. TCP, UDP)
- The network layer (e.g. IP, DHCP, ICMP)
- The link layer (e.g. Ethernet, ARP)

Assessment

By 2-hour written examination and coursework exercises, weighting 80% and 20% respectively.

Reading

- Sas Jacobs, Beginning XML with DOM and AJAX. Apress, 2006, ISBN 1-59059-676-5.
- Anders Moller and Michael Schwartzbach, An Introduction to XML and Web Technologies. Addison Wesley, 2006, ISBN 0-321-26966-7.
- James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach (6th edition), Pearson, 2012, ISBN13: 9780273768968, ISBN10: 0273768964.

4.11 MSc Project

Teaching Staff

Supervisor of the project, Projects Tutor

Online material

http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_CS_project

Aims

In the MSc project students will be able to demonstrate their skills in organising and completing a task that goes beyond a typical coursework assignment. This includes planning and executing a major piece of programming work appropriate to the MSc programme and presenting existing approaches in the problem area (placing the student's own approach in the wider context).

Students are encouraged to come up with their own ideas for projects. In order to arrange supervision for the project a student should discuss possible projects with the Projects Tutor, Programme Director, or with the lecturer who seems the most appropriate for the topic.

Syllabus

The main part of the module will be done by the students on their own (supported by the supervisor). There is a small taught part of the module in which the students are acquainted with

- how to formulate the objectives/aims of an MSc project
- how to write a project proposal
- how to organise and plan the project
- how to research literature
- how to write a project report.

Assessment

Written project proposal (of about 2000-3000 words) and written project report (of about 10,000 words), weighting 20% and 80%, respectively.

Reading

- As recommended by the supervisor.

5 Administration and Assessment

For detailed College rules and regulations see

<http://www.bbk.ac.uk/mybirkbeck/services/rules>

and, in particular,

<http://www.bbk.ac.uk/mybirkbeck/services/rules/casregs.pdf>

Below we summarise the most relevant rules for the MSc/PGDip CS.

5.1 Requirements for the Award of the MSc/PGDip

Each taught module (all modules except the project) is assessed by a written exam and, in most cases, by additional coursework. The project module is assessed by the project proposal document (20%) and the project report (80%).

To gain an award the following is required:

- Postgraduate Certificate (PGCert): pass the 30-credit module Programming in Java and two additional compulsory 15-credit modules.
- Postgraduate Diploma (PGDip): pass all compulsory taught modules and one optional taught module.
- Master of Science (MSc): requirements for PGDip and pass the project.

For each module, a Pass requires at least 50% of the available marks (computed according to the corresponding weights of the parts of the assessment). Up to 30 credits of the taught modules with a mark between 40% and 49% can be compensated on the PGDip and MSc, assuming that the total weighted average mark is at least 50% (note that College regulations do not allow compensation on PGCert).

The final grade is computed by taking the weighted average (according to the credits) of the module assessment marks. The following has to be satisfied:

- Pass requires at least a 50% weighted average
- Merit requires at least a 60% weighted average
- Distinction requires at least a 70% weighted average and, normally, at least 70% on the project.

5.2 Announcement of Results

The Examination Board meets in July to consider the results of the written exams and coursework, and in November to consider the results of the projects and to award degree.

Shortly after the meeting of the exam board you will receive a letter from the Department about your results. Your results and grades will be officially confirmed by the College on your MyBirkbeck profile.

Students who have not paid their fees are given **no information at all** about their examination results.

5.3 Choosing the Optional Module

You will receive a form from the Programme Administrator at the beginning of the relevant term to indicate your choice of the optional module. You have to return this form by the specified deadline so that your chosen module can be listed among the modules that you wanted to be assessed that year.

Optional module availability is subject to timetabling constraints and student demand. In the event that an optional module is over-subscribed, available places will be allocated on a first-come, first-served basis determined by the date you return your module choice form to the Programme Administrator.

5.4 Mitigating Circumstances and Deferral

A Mitigating Circumstances claim should be submitted if valid detrimental circumstances result in:

- the late or non-submission of assessment;
- non-attendance of examination;
- poor performance in assessment.

If a student feels their circumstances warrant consideration by the Board of Examiners they should notify the Programme Director, in writing, in advance, at the earliest opportunity (within 7 days of the assessment deadline or examination) using a Mitigating Circumstances Claim Form, which can be downloaded from MyBirkbeck:

<http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/exams/mitigating-circumstances>

In the form, students should state whether the circumstances relate to non-attendance at an examination or late submission of an assignment and should include supporting evidence (e.g. a medical certificate giving the nature and duration of any illness). Students should be aware that discussing their claim with a member of staff does not constitute a submission of a claim of mitigating circumstances.

For a claim to be accepted a student must produce independent documentary evidence to show that the circumstances:

- have detrimentally affected their performance/submission/attendance in assessment or will do so;
- were unforeseen;
- were out of their control and could not have been prevented;
- relate directly to the timing of the assessment affected.

For further information, students may consult the document on mitigating circumstances through MyBirkbeck:

<http://www.bbk.ac.uk/reg/regs/mitcircspol>

In **exceptional cases**, students may be permitted to defer the written exams and/or the project to the following year. They must apply by filling in a Mitigating Circumstances Claim Form. Students have to do this before **1 May** for exams and by **1 September** for the project. A student who defers an element of assessment normally has to enter for that element the following year; usually no further deferrals are permitted.

Simply not turning up for an exam or failing to submit a coursework or project, without permission to defer, will be considered to be the same as failing it, in the sense that it will count as one of the two attempts that you are permitted to make at passing that element.

5.5 Retake and Reassessment

One reassessment (but only one) is allowed for each element. You maybe reassessed in a failed coursework, written exam or the project if your marks for that module are below 50%. If your marks are below 40%, then you have to retake the whole module (i.e., attend lectures and be reassessed in each element of the module, including coursework and exam).

Students who fail an assessment and awarded a reassessment opportunity have their reassessment subject to a cap of 50% for the reassessed element. The cap does not apply to a retake of a whole module and to students with accepted mitigating circumstances.

There are no special resit exams; students resit alongside the other candidates in May/June the following year. They normally do so a year after their first attempt. Where the syllabus has changed, we set a paper that is suitable for resit candidates, providing alternative questions where necessary. Note, however, that we do this only for candidates from the previous year, not from further in the past.

Also note that part-time students need to accumulate at least 45 credits (out of the available 75) in their first year in order to progress into the second year.

5.6 Re-enrolment

Repeat students, i.e. students who have to retake some modules (and are not taking any new modules) will be charged pro-rata based on the number of credits they retake.

Assessment only students, i.e. those students who

- are being reassessed for coursework and/or examinations only
- have deferred their examinations and are not taking any new modules
- have deferred the project and do not require supervision (resubmitting only)

pay a reduced fee that will allow them access to College facilities (Library and workstation rooms). While deferred students are classed as assessment only they are allowed to attend lectures for revision purposes. They should formally seek the permission of module tutors to ensure classes are not oversubscribed.

Dissertation only students, i.e. students who retake the project with supervision, pay one third of full fees. Note that

- a student who has to resubmit the dissertation and be reassessed for examination or coursework will be progressed as dissertation only
- a student who has to resubmit the dissertation and also repeat modules will be progressed as repeat and fees are based pro-rata on the number of credits.

5.7 Examinations

Please consult the programme's intranet web page (for enrolled students):

http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_CS_Intranet

5.8 Coursework

A number of modules require students to submit coursework as part of the assessment. Please consult the web page of the relevant module or contact the teaching staff of the module for particular details.

Submitted coursework must always be the students own work, except where explicitly noted. Students are required to confirm in writing or via e-mail that each item of coursework submitted is indeed their own work. The Department and College have strict guidelines and penalties associated with plagiarism, and routinely submit students' work to plagiarism detection services. More details are given in the section "Assessment Offences and Plagiarism" of this booklet.

College policy dictates how Schools will treat work that is due for assessment but is submitted after the published deadline. Any work that is submitted for formal assessment after the published deadline but before the cut-off date (normally ten working days after the deadline) is given two marks: a penalty mark of 50% for postgraduate students, assuming it is of a pass standard, and the real mark that would have been awarded if the work had not been late. Both marks are given to the student on a cover sheet. If the work is not of a pass standard a single mark is given.

If you submit late work that is to be considered for assessment, then you should submit a mitigating circumstances form, see above, and provide written documentation, medical

or otherwise, to explain why the work was submitted late. The case will then be considered by the appropriate sub-board or delegated panel of the Board of Examiners.

If no case is made then the penalty mark will stand. If the case is made and accepted then the examination board may allow the real mark to stand.

5.9 Projects

Please consult the programme's intranet web page (for enrolled students):

http://www.dcs.bbk.ac.uk/dcswiki/index.php/MSc_CS_Intranet

5.10 Assessment Offences and Plagiarism

See at MyBirkbeck

<http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/offences>

for the College Policy on Assessment Offences.

One particular assessment offence is *plagiarism* that is defined as “copying a whole or substantial parts of a paper from a source text (e.g., a web site, journal article, book or encyclopedia), without proper acknowledgement; paraphrasing of another’s piece of work closely, with minor changes but with the essential meaning, form and/or progression of ideas maintained; piecing together sections of the work of others into a new whole; procuring a paper from a company or essay bank (including Internet sites); submitting another student’s work, with or without that student’s knowledge; submitting a paper written by someone else (e.g., a peer or relative), and passing it off as one’s own; representing a piece of joint or group work as one’s own”. Also, a “student who knowingly assists another student to plagiarise (for example by willingly giving them their own work to copy from) is committing an examination offence.”

The College considers plagiarism a serious offence, and as such it warrants disciplinary action. This is particularly important in assessed pieces of work where plagiarism goes so far as to dishonestly claim credit for ideas that have been taken by someone else.

The College also provides learning support for exams and assessments, see

<http://www.bbk.ac.uk/mybirkbeck/get-ahead-stay-ahead/academic-support>
and guidelines on plagiarism

[http://www.bbk.ac.uk/mybirkbeck/get-ahead-stay-ahead/academic-support/
plagiarism](http://www.bbk.ac.uk/mybirkbeck/get-ahead-stay-ahead/academic-support/plagiarism)

and

[http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/
offences/plagiarism](http://www.bbk.ac.uk/mybirkbeck/services/administration/assessment/offences/plagiarism)

6 Wellbeing Service

The Wellbeing Service

<http://www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service>

is made up of the Counselling Service, the Disability and Dyslexia Service, and the Mental Health Service. They provide specialist support to students.

You can contact the Wellbeing Service by emailing wellbeingservices@bbk.ac.uk or by calling on 020 7631 6316, where you will be able to speak to one of the Wellbeing Service Administrators. The telephone service opening hours are:

- Monday to Thursday : 11am-1pm and 2pm-4pm
- Friday: 11am-2pm

6.1 Counselling Service

The Counselling Service

<http://www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service/counselling-service>

provides assistance to students who are experiencing emotional difficulties which may be impacting upon their studies or overall experience at Birkbeck.

6.2 Mental Health Service

Many students experience mental health difficulties at some point in their time at university. Whether you have a formally diagnosed psychiatric condition or other form of mental health difficulty such as anxiety or depression, we encourage you to seek support in your studies.

Birkbecks Mental Health Service

<http://www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service/mental-health-service>

is a first point of contact for students experiencing mental health issues at any stage during their studies.

6.3 Disability and Dyslexia Service

At Birkbeck we welcome students with disabilities. We aim to provide all of our students with a study environment that enables them to participate fully in our courses.

The Disability and Dyslexia Service

[http://www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service/
disability](http://www.bbk.ac.uk/mybirkbeck/services/facilities/well-being-service/disability)

can provide advice and support to students with conditions that impact their ability to study, such as:

- specific learning difficulties (dyslexia, dyspraxia, dyscalculia, AD(H)D)
- sensory impairments (blind/partially sighted, deaf/hearing impaired)
- mobility conditions (including RSI, arthritis, neck back and knee conditions etc.)
- medical conditions (e.g. HIV, CFS, diabetes, cancer, chest and respiratory conditions etc.)
- autism spectrum conditions (autism or Aspergers syndrome)

They can provide support during your studies including

- Your Study Support Plan
- The Disabled Students' Allowance
- Access to Learning Fund
- Charities and trusts
- Dyslexia screening test
- Government benefits
- Personal emergency evacuation plans
- Pager alert system
- Rest Room
- Toilet facilities
- Car parking
- Disability and Dyslexia Support in the Library and IT Services

7 Career Development

Most students are interested in developing their careers, either within their current field of work or in a completely new direction. The Careers Group, University of London <http://www.thecareersgroup.co.uk/> offers great expertise and experience in working with students and graduates of all ages and at all stages of career development.

The Careers and Employability Service

<http://www.bbk.ac.uk/careers/careers-service>

is our inhouse service for enhancing career development and employability throughout your time at Birkbeck, from enrolment through to graduation.

There is also Birkbeck Talent, a professional recruitment service aimed exclusively at assisting Birkbeck students to find work whilst studying and after graduation. They work with Londons top employers to offer innovative internships, prestigious job vacancies and exciting graduate opportunities. To find out more, visit bbk.ac.uk/talent.