



An Accredited Institution of the University of Westminster (UK)

COURSE HANDBOOK 2020/21

BSc (Hons) in Business Information Systems

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Welcome to the Course

Welcome to the course:

Welcome to Westminster International University in Tashkent (WIUT) and to the Bachelor of Science (Honours) in Business Information Systems, a validated course of the University of Westminster, London.

The purpose of this handbook is to explain to you the main details of the course. Some of the information may appear complex and daunting at first sight, but as you become used to the University and the course you will find more useful. We want you to feel confident on the course and hope this handbook will help you understand how the course is structured, the assessment procedures, the course management and other vital aspects of your programme.

It is important that you retain this handbook throughout your time at the University. The Course Handbook should be read in conjunction with the [Handbook of Academic Regulations](#) available on the Academic Registrar's Portal.

Being a student can be an enjoyable experience - despite all the pressures, it is a unique opportunity for you to discover your own strengths and to capitalise on them. This time will remain in your memories with warm thoughts and many friends you make here will stay with you for a long time.

You will find that your peers on the course have varied backgrounds, abilities, hopes and aspirations. We hope you will gain useful life experiences, knowledge and skills from the interaction with your fellow students as you progress in the course.

For some of you, your aim at the end of the course will be to gain an interesting and worthwhile job. For others it will be to continue your studies to degree, masters or research level. The University provides many opportunities to help you both in your studies and in your personal development, but the final responsibility for learning rests with you.

We strive to create an academic environment in which you are continually challenged and inspired to do your best possible work. We can only do that with your effort and ambition. It is a partnership between all of us - you, the lecturers and the University. So let us work together to achieve our aim and to make your time here an enjoyable and valuable experience.

Shirin Primkulova

Course Leader
BSc in Business Information Systems
Westminster International University in Tashkent

Welcome to Westminster International University in Tashkent:

It gives me great pleasure to warmly welcome you as a student of Westminster International University in Tashkent (WIUT), and as a student on a validated course of the University of Westminster. Colleagues both at WIUT and the University of Westminster are delighted that you are joining us.

WIUT and the University of Westminster have been working in partnership for the last eighteen years to deliver educational programmes in Uzbekistan, and you are joining an institution with an outstanding reputation for educating students to go on to become leaders in their field both in Uzbekistan and overseas.

You will find that WIUT has a wide range of excellent resources, and you will be taught by a highly qualified academic team who will support you throughout your time here. In addition there are regular visits from colleagues from the University of Westminster, in particular each course has a Liaison Tutor who you may meet as they make regular visits to Tashkent to ensure WIUT is able to deliver to the standards expected.

As students you are one of our most important stakeholders, and we value the contribution you make both inside and outside the classroom, through curricular and co/extra-curricular activities. I would urge you to make the most of all the opportunities that are afforded to you.

We are here to support you during your time at WIUT, and if you have any queries or need any help please do not hesitate to ask.

Dr Komiljon Karimov
Rector

Purpose of the handbook

This handbook provides you with information about your course, and key information about:

- Learning, teaching and assessment processes
- University of Westminster and WIUT policy and regulations that affect your studies
- Support available to students

The Course Handbook should be read in conjunction with the University of Westminster *Modular Framework for Undergraduate Courses* and relevant sections of the current *Handbook of Academic Regulations*, which is available at the Academic Registrar's Portal (<http://registrar.wiut.uz/>). NB: Regulations are subject to change and approval by the Academic Council of the University of Westminster and/or WIUT.

How to contact us

Course Contact Details

The Course Leader

You are registered on a course and a set of modules. You will have a Course Leader who is responsible for the general management of the course and your programme of study.

BSc(Hons) in Business Information Systems course leader is:

Shirin Primkulova

Email: sprimkulova@wiut.uz

Who to contact about module queries?

Module Leaders

On the course, you will study a range of modules. A module team delivers each module. Each module has a Module Leader who is responsible for the delivery, resourcing, assessment and smooth running of the module and for co-ordinating the module team.

If you have a query about a module you should contact the relevant Module Leader. However, whilst studying on the module you may not be taught by the Module Leader so it may also be appropriate to contact your tutor who teaches you first.

Module Leaders are responsible for:

- The day to day administration of the module;
- Liaising with other lecturers on the module and integrating contributions from staff;
- The monitoring of students' progress on the module and liaising with students' tutors and the Course Leader as appropriate;
- Ensuring that the assessment of the module operates smoothly in collaboration with the Academic Registrar's Office

The list of Module Leaders can be found at the Faculty office or on the Intranet module page.

For module queries, please make an appointment with a relevant lecturer by e-mail or visit them in their office hours. E-mail address information is available on the Intranet in Module Syllabus.

Faculty Office

The Faculty office deals with the operation of the Faculty functions, for example: staffing and staff professional development, academic programmes development and management, research and consultancy, academic quality assurance and enhancement, timetabling, academic requirements, etc.

Who to contact about other student services:

“Ask.WIUT”

If you are not sure about an issue you can approach the “Ask WIUT” information service and they will direct, you to the most appropriate office.

“Ask.WIUT” is an internal inquiries service which provides students with information as who to approach when they have a query, get directions to find a particular place at the university or any other information. Ask WIUT Information Service is located on the ground floor, in the lobby of the Amir Temur building.

The Academic Registrar’s Office

The Academic Registrar’s Office deals with all administrative aspects of your course, including those relating to enrolment and module registration, coursework and exams, letter requests, and University procedures and regulations.

Office Opening Hours:

Undergraduate Office (ATB 104):

Open for all
Monday to Friday
10.00 am - 14.00 pm
15.00 pm - 17.00 pm

For more information please visit Registrar’s Office Portal on registrars.wiut.uz

Student Support Services

The Social Department

The Social Department provides advice and guidance on accommodation, financial and legal matters, personal counselling, health and disability issues, careers, and advice for international students. This gives students a chance to look at a variety of opportunities, starting from an advice and assistance on building plans for the future career, and ending with getting a part-time employment to cover their own living expenses. Additionally, for those who are required to undertake military service the Social Development Team can make necessary arrangements.

Academic Counsellor

You will be assigned an Academic Counsellor who is a member of academic staff who may or may not be teaching you on other modules on your course but has been especially selected for this role because of their personal qualities and knowledge of undergraduate studies. The Academic Counsellors provide academic and personal support and developmental advice, on a planned and regular basis. They provide the link between course delivery by academic staff and the more specialist support provided by University services.

The Academic Support Centre helps students in developing the skills required for higher education as well as ongoing support in enhancement of Academic English, quantitative and research competency and skills. As well as online resources on WIUT Intranet, students have the opportunity to attend workshops and one-to-one appointments with Learning Support Officers. Further

information on the Academic Learning Support Services can be found at <http://intranet.wiut.uz/AppointmentBooking/Officers>.

Student Housing Services

The University offers accommodation for regional and international students. In addition to all the necessary facilities, the dormitory has a Gym. There is also a computer lab with an access to Internet which provides students with a chance to continue their academic assignments off-campus.

Student Health Service

There are a number of Health Centers on campus that provide an immediate point of help for medical advice. The Center also offers students and staff of the university vaccinations on an annual basis free of charge.

Students' Union

The aim of the WIUT Students Union is to provide a range of essential services as well as assisting students in their social life. The Union gives help and advice on academic and personal matters and represents students on all University Committees and organizes sport events, language and other courses and entertainment.

Academic Staff Office hours

An advantage of studying at WIUT is that students have many opportunities to work with the academic staff of university in one to one basis during office hours of Faculty staff. Office hours of each faculty staff involved in the academic delivery process are normally announced on the module web site in the WIUT intranet and information boards as well as within in-course assessment instructions.

Course Information, News and Events

All course related information/news/events will be posted in official notice boards, WIUT intranet page <http://intranet.wiut.uz/>, and WIUT portal <http://registrar.wiut.uz/>.

The Academic Registrar's portal <http://registrar.wiut.uz/> on the intranet also has important announcements as well as the definitive versions of the Course Handbook, Academic Calendar, Academic Regulations and assessment schedules. The portal also provides services such as, confirmation letters, submission of a complaint, appeals etc. You may also request forms as check-lists, suspension/withdrawal of study and other official letters.

PLEASE NOTE THAT THE DEFAULT CHANNEL OF COMMUNICATION AT WIUT IS E-MAIL. IT IS STUDENTS' RESPONSIBILITY TO REGULARLY CHECK THEIR WIUT WEBMAIL FOR ANY IMPORTANT ANNOUNCEMENTS AND/OR NOTIFICATIONS WITH COURSE AND/OR MODULE-RELATED INFORMATION.

Key information about the Academic Year

Undergraduate	2020/21
Enrolment and Orientation	21 September - 25 September 2020
Semester one teaching	28 September – 18 December 2020
Semester one exam period	4 January - 15 January 2021
Semester two teaching	25 January – 16 April 2021
Semester two exam period	26 April – 7 May 2021
Referral and deferral assessment and exams	28 June – 9 July 2021

Additional information regarding the University Academic Calendar can be found at <http://registrar.wiut.uz/>

Learning and Teaching

How will you learn?

The course emphasises active student learning through seminars and lectures (including virtual), computer-lab and financial markets suite workshops, problem-based and blended learning activities designed to engage your interest. Course material will be provided through the online learning platform and is an important resource base for you which you can access at any time and from anywhere provided you have access to the internet. The platform also provides a channel of communication between you and your module leader through blogs. This ensures a student centric approach, focusing on your abilities, needs and learning styles where the module leader is a facilitator of your learning.

Independent study is a key learning skill for academic study and for your future employability. As part of your course, you will be expected to work independently. This may take various forms: examples include group collaborative tasks, research, reading, revision, assessment preparation, projects that feed into presentation and debates, lab or studio-based work. You will be encouraged, guided and supported towards developing progressively increasing skills as an independent critically aware learner. You should expect each module to have both specified contact hours and independent learning. The hours may differ significantly depending on the specific subject matter, your level of study and the approach to teaching and learning.

You will be encouraged to work in groups with other students during seminars and workshops and for any non-assessed purpose, including revision and examination preparation. This gives you the opportunity to learn from one another and helps you to value the views of others and to learn to give and receive constructive feedback.

Seminars and workshops are provided each week to provide a stimulating environment for you to work through examples and case studies, experiment with hands-on solutions in the labs, engage in group discussions or on-line discussions, and gain immediate feedback and support from teachers.

In addition, you will be provided with a range of additional resources, which can be accessed through the University on-line learning content management system, and textbooks, academic journals and other materials available in the University's learning resource centre, and software systems are provided in the computer labs. Teaching staff are often engaged in research or commercial activities, and this ensures that the students gain an understanding of contemporary issues in the field.

The teaching and learning strategy employed by the course Team aims to enable you to maximise your own individual learning style as well as developing your ability to work in teams.

- Businesses increasingly operate with teams of specialists. They require people who can communicate and interact effectively within a team, recognising and supporting leadership, being proactive in leadership, negotiating and managing conflict. It is a fundamental belief at WIUT that students learn by *doing*, rather than by being told. As a student you will be required to participate in group work in a variety of situations. By putting students into teams and giving the teams a task to perform or product to produce it is hoped that you will gain experience upon which you can reflect and from which you can learn.

- Increasingly, businesses will rely on people who can work independently and remotely, using technology to overcome the traditional constraints of location, time and national boundaries. The course is designed to provide in its delivery experiences that reflect not only the current world of work but also anticipate how it will develop. An example of the way in which the team illustrate this is the use of ICT in teaching, learning and assessment. For instance, module leaders may provide students with web-based learning material and provide feedback to their tutorial groups through email and web-based notices. In **Web Technology** module students learn to use the technologies that help to facilitate this new way of working and doing business. Again, the assessment has a very practical edge: students design and build their own websites. The experience of doing this allows for real evaluation, which in turn develops your reflective skills.
- As the content of the Level 4 modules is primarily knowledge based, the mixture of traditional and active learning approaches allows students to assimilate gradually the demands of UK higher education. Key readings covering major theories and models will be provided in lectures and you will be expected to participate in seminar exercises to develop discursive and analytic skills.
- Delivery of most modules is supported by learning materials, which will be paper and/or electronic-based. These provide key input to the module and could include: a teaching schedule; an outline of the key concepts expanded in the lecture; key readings (from original authors where possible); exhibits and mini-case studies with solutions to demonstrate the theory in practice; activities for completion during seminars to reinforce key concepts. It will also act as a mechanism to enable you to monitor your progress and achievement of the learning outcomes.
- Technological learning support will be provided wherever possible. A variety of methods will also be used to facilitate learning e.g. computer workshops, simulations and role-play, case-study analysis, quizzes, student-led seminars and group work. Lectures might include both oral and slide presentations, which in some subject areas will include software demonstrations and video clips or accessing a range of web sites. In particular, in **Fundamentals to Programming, Database Systems Development** and **Object-Oriented Programming** modules software will be used to develop and run aspects of applications.
- Learning experience in information systems management profession is required at the current IT market for the maintenance of IT services in contemporary business organisations. **Information Systems Management, Developing Digital Enterprise** modules will provide an understanding of business organisations in terms of their types and structures, and the information systems needed to enable those business organisations to operate successfully within their environment.
- The course creates opportunity to gradually strengthen and master skills and knowledge in different directions by providing certain optional modules. For instance, **data analytics direction** having embarking modules Fundamentals of Statistics and Data Science, Database Systems Development, Business Intelligence Systems, Machine Learning and Data Analytics. **Business management** direction embarks Introduction to Management and Organisational Behaviour, Information Systems Management, Project Management, Strategy in a Complex World, Developing Digital Enterprise, ERP Design and Implementation. **Programming** direction embarks Mobile, Web and Game applications development, Concurrent Programming, Internet of Things, etc. **Graphics** direction embarks Graphic design, Game development and CGI and its implementation.

In summary, the teaching and learning strategy used will develop your intellectual abilities; your knowledge; your powers of creativity, powers of analysis and your transferable skills. On any individual module, a combination of teaching approaches will be used depending on the nature of the subject being taught, and the specified learning outcomes.

Key transferable skills and abilities encompass the general intellectual development of the individual. Use of a wide range of assessment formats enhances the visibility of these characteristics. Typically,

students are expected to demonstrate through coursework, tests, portfolio generation and examinations their ability to

- Gather and assess information;
- Organise and manipulate data;
- Think critically and evaluate their own performance;
- Work collaboratively;
- Self-manage;
- Use numbers accurately and effectively;
- Communicate effectively orally and in writing;
- Use of IT as tool and resource;
- Conceptualise and problem solve.

Employment and further study opportunities

Westminster International University in Tashkent graduates will be able to demonstrate the following five **Graduate Attributes**:

- **Critical and creative thinkers:** introductory modules present insights into organization and its core functions and prepare the students for a deeper level of analyses which is reinforced and assessed during subsequent levels of study.
- **Literate and effective communicator:** this is stimulated by group assignments, oral presentations, written course work tasks that students are to undertake throughout their studies.
- **Entrepreneurial:** the course structure is designed to develop management, leadership and other business-related skills necessary for entrepreneurship.
- **Global in outlook and engaged in communities:** during their studies the students will learn to appreciate diversity and build awareness of different cultures and management practices in **global context**.
- **Social, ethically and environmentally aware:** students will learn social, ethical and environmental responsibility.

WIUT has become a university of choice for the employers across country, who increasingly show keenness to recruit specifically the graduates of WIUT undergraduate programmes. Graduates of the programme take up career paths in a wide range of industries in both private and public sectors in Uzbekistan and globally. The course opens doors to careers in fields such as business analytics, data analytics, systems analysis and/or design, system/application/game development, information system management, security management, project management, knowledge management and IT business consultancy.

The BSc(Hons) Business Information Systems graduates are also well placed to pursue their studies at master's level or higher in related areas such as Business Intelligence, Computer Science, Computer Engineering, Mechatronics, Information Security, Business Administration, Marketing, Data Mining, Data Intelligence, Machine Learning, Big Data.

Learning Resources Centre [LRC] and IT services

The Learning Resources Centre provides a range of Learning support services that includes a collection of resources related to the subjects taught. Students can search the printed library collection online through the Web OPAC system, available from Intranet/University Library page (<http://peter.wiut.uz:8081/libs/library/index.html>) and Digital Library (lrc.wiut.uz). Printed resources are annually renewed by demand from the module leaders, with the special emphasis on new modules introduced and newest editions published. The LRC electronic resources include

subscribed and Open Access databases, e-books and e-journals and also accessed through Intranet/University Library page and Digital Library, which is updated monthly.

In order to facilitate the independent learning, the LRC conducts training sessions on academic search, effective usage of databases, and reference management tools either in the form of one on one consultancy, and group embedded sessions upon request.

Learning environment is diverse and meets the requirements of different types of learning styles. There is WiFi across the campus so that you can use your personal computers, ipads, etc., desktop computers, which are available in a range of locations, as well as photocopying and printing services, whiteboards, LCD information boards and 4K screen for conducting presentations. Students can also choose from several computer rooms in each building where desktop computers are available with the general and specialist software that supports the courses taught in WIUT.

WIUT On-line Learning Management System

The university has developed its own version of a student on line support system to reflect the conditions in Uzbekistan and to provide a resource for students and staff, to interact and provide additional support for independent learning.

The **WIUT Intranet**, available via intranet.wiut.uz, has been developed to enable students to access learning resources independently and remotely. Each module has an online box that provides the facility for independent student exchange via a 'Module Blog', for the tutor to provide additional learning materials, lecture material, seminar and assessment material. You will find that module teams use the module page in different ways, but in most cases, you will be able to get your assignments, receive feedback on assessments, review lecture materials and obtain additional reference material that you would find useful in your studies. In addition, the Library provides an on-line catalogue and e-journals that you can access.

In addition, the **WIUT Student Record System** is also available from srs.wiut.uz, both within the university and remotely. This system stores all your assessment marks and you can review your profile. There are developments that are planned to further help you in your studies.

Academic Registrar's Office provides key information such as course handbooks, enrolment and module registration information, exam timetables, and more, accessible via WIUT Intranet and <http://registrar.wiut.uz/>

How to access your timetable

Your timetable is now available [online](http://intranet.wiut.uz/timetable/index.html) on WIUT Intranet. To access your timetable, use following link <http://intranet.wiut.uz/timetable/index.html>

Student Engagement

As a student, you're encouraged to play a full part in the decision-making processes of the University - and there are many opportunities for you to do so, whether through your Course Committee, or other student-staff consultative forum, or through the WIUT Students' Union.

- Course Representatives are elected to represent the students on their course. Course Representatives collect feedback from students and present this feedback at Course Committee meetings.
- All students are invited to complete a questionnaire before the end of each module. The feedback from this will inform the module leader on the effectiveness of the module and highlight areas that could be enhanced.

- The University also has an annual Course Evaluation Survey, which seeks the opinions of students about their course, and University experience.

Assessment and Feedback

How will you be assessed?

The Assessment Strategy of the Course is based on the criterion-referenced assessment concept that is designed to assess changes in performance as a result of learning, for the purpose of seeing what and how well material has been learned. The course strives to develop effective approaches to assessment, both formative and summative, taking into consideration the variety of modules within the course such as level, length and type of the module.

The course offers a variety of assessment to students that are appropriate to learning outcomes and level of study. The course strives to develop effective approaches to assessment, both formative and summative, taking into consideration the variety of modules within the course such as level, length and type of the module. The formal summative assessment of knowledge and understanding is mainly by written examinations and assignments, and to some extent, oral presentations. All modules provide for a variety of assessment including presentations (group and individual), essays, reports, problem-based assignments, in-class tests, timed exams and debates.

Assessment is an important part of your learning process. Combined with student-centred approach to teaching and learning, it aims to promote initiative and creativity, critical thinking, structure of coherent arguments, evaluation, research and analysis, professional communication skills, effective group work, personal reflection, time-management, the ability to meet deadlines, and ability to work under pressure.

Most modules incorporate 'formative assessment' to provide you with structured feedback so you can reflect on your progress and act on the feedback to prepare for the assessments that count. Formative assessments are important to you as they help you to identify ways in which you can improve and areas of strength.

The module leader, in consultation with the module teaching team, sets all assessments for a module. All assessments are subject to a process of approval known as moderation, through which the University of Westminster ensures that assessments are appropriate for the level and learning outcomes of the module.

The University Assessment Tariffs that will govern all assessments is available on the intranet see: http://registrar.wiut.uz/SiteAssets/3.7%20Assesment%20Tariffs_WIUT.pdf

You may be assessed through a 'group course work'. The policy on the working of a group and its assessment can be found on the intranet:

<http://registrar.wiut.uz/SiteAssets/3.6%20%20Group%20work%20policy%20WIUT%20v5.pdf>

How do I submit my work?

The requirements for the assessment will be stated on the module assessment schedule. Formal summative work will require a top sheet which will state your WIUT and UoW Student Identification number, together with the module title. Please do not put your name on any piece of assessed work. Where possible, assessments are marked anonymously (the marker will not know the identity of the student) but some work, like presentations cannot be marked anonymously. It is important that an

efficient and appropriate writing style is adopted, and the limited word count will encourage such style and also serve to guide you on the amount of work expected.

All assignments have deadlines, which must be met. All work must be submitted to the University Academic Registrar's Office and never directly to your lecturer using the appropriate assessment submission form. It is a usual requirement of the Course, unless individual modules expressly indicate otherwise, that the submission of coursework must be in two formats: (1) in the usual paper format (hard copy) to the designated place; and (2) in electronic format to Turnitin or University Intranet in accordance with the directions given in the coursework question paper or other instructions.

It is vital that students retain a copy of all course work they hand in. Whilst every care is taken, it is inevitable, even in the best-regulated organisation that some instances of work being mislaid will occur. In such cases, you will be required to produce your copy for assessment. It is unfortunate but it must remain the responsibility of individual students to ensure that they have a copy of any work submitted.

Academic Misconduct

As an academic community, all students and staff at the University are expected to demonstrate the highest standards of academic conduct. The University's expectation is that all grades obtained by students must result from the student's own efforts to learn and develop. If carried out knowingly, cheating and plagiarism have the objectives of deceiving examiners and gaining an unfair advantage over other students. This is unethical. It also threatens the integrity of the assessment procedures and the value of the University's academic awards.

While you are studying here your academic performance will be assessed on the basis of your own work. Anyone caught cheating in exams/in-class tests or through coursework assignments will be subject to formal investigation in accordance with Section 10 of the University of Westminster's Academic Regulations.

It is your responsibility to ensure that you are not vulnerable to any allegation that you have breached the assessment regulations. Serious penalties are imposed on those who cheat. These may include failure in a module or an element of a module, suspension or exclusion from your course and withdrawal of academic credits awarded previously for modules, which have been passed.

Please remember that all coursework should be submitted to the University Academic Registrar's Office where a record of its submission will be kept. Never submit your coursework directly to the lecturer.

How is my work marked?

All written work will be marked following the assessment criteria published with the assessment. Your work will be marked by members of the Module Team under the co-ordination of the Module Leader. You will be provided with feedback that justifies your mark and suggests what you could have done to improve it. The mark awarded reflects the academic judgement of the assessor and cannot be challenged by the student.

All assessment are subject to a process of moderation and review according to the University of Westminster/WIUT process. This process entails a second marking procedure a second marker thoroughly reviews a sample of all the assignments to ensure the standard and quality of the first marking. The final stage takes place at the end-of-academic year assessment board where external examiners review the process of marking and review a sample of assessments. External Examiners

are able to view any piece of work that has been submitted. The External Examiners are appointed by and report to the University of Westminster. They attended the final assessment boards and submit a written report on the quality and standard of marking. External Examiners DO NOT mark but review the assessment process and the standard of marking of WIUT staff.

Your mark will be provisional until this process is completed, and the mark officially published on the WIUT SRS and University of Westminster SRS.

The University of Westminster has arrangements for marking, internal moderation and external scrutiny. Further information can be found in [Section 12](#) of the Handbook of Academic Regulations.

The University General Grade Descriptors that will be used to help assess your work can be found on the intranet:

<http://registrar.wiut.uz/SiteAssets/Guidance%20Generic%20Grade%20descriptorsWIUT.pdf>

How will I get my results?

All assessment marks suggested referral opportunities, recommendations for conferment of an award or exclusion from a course must be formally ratified by the relevant Assessment Board. Any marks or grades released prior to the meeting of the Assessment Board have the status of provisional marks and are identified with an *. The Academic Registrar's Office publishes the calendar for submission of assessment marks and Assessment boards on the Registrar portal (<http://registrar.wiut.uz/>).

Confirmed results will then be released through SRSWeb once agreed by an Assessment Board, and the * removed.

Using Feedback

You will be given feedback on all formative assessments. The feedback which you will receive will allow you to reflect, revise and improve your approach for the next assessments. You should carefully analyse the feedback given on your piece of work, if you do not understand it then you should seek clarifications from your lecturers who gave you these comments. Understanding and reflecting on feedback is a critical element of the learning process. It is your responsibility to collect feedback provided. Feedback is not just about a mark and can be given in a variety of ways. Examples include a lecturer taking time out at the end of lesson to provide comments on a recent assessment, feedback through webmail and one to one meeting.

Individual feedback on examination papers will not normally be provided to students (See regulation 12.12). Generic feedback may be provided, for example, in a group tutorial. A copies of exam scripts may be requested by a student, after the confirmation/publication of marks by the Assessment Board to enable students to understand the reasons for the mark obtained.

University of Westminster Assessment Boards

The relevant University of Westminster Assessment Board must formally ratify all assessment marks, suggested referral opportunities, recommendations for conferment of an award or exclusion from a course. Any marks or grades released prior to the meeting of the Assessment Board have the status of **provisional** marks.

Please note that if you have failed a module you need to re-check your results on or after the University publication of results day see <http://registrar.wiut.uz/>. Details of the regulations governing Assessment Boards are set out in Section 14 of the University's Handbook of Academic Regulations, available at:

<http://intranet.wiut.uz:11619/SitePages/Handbook%20of%20Academic%20Regulations.aspx>

What to do if you fail

If you have failed a module, you should contact your Course Leader for advice on what to do next.

Regulations governing module failure are detailed within Section 17 of the [Handbook of Academic Regulations](#).

University of Westminster Liaison Tutors

The University of Westminster as part of the Quality Assurance process appoints a Liaison Tutor for the validated courses and they are crucial in providing a link between the staff based in the sponsoring college at the University of Westminster and staff working in academic administration at WIUT. Liaison Tutors are usually based within a University of Westminster College responsible for the academic area of the course at WIUT.

The role of the Liaison Tutor may vary according to the nature of the collaboration but is likely to include liaison with colleagues at the partner institution; support and advice on processes, providing guidance on student representation and feedback; visiting the partner institution.

The liaison tutor will usually visit WIUT at least twice a year and during their visit will hold meetings with WIUT students to discuss their views on their programme and any other issues of concern. The liaison tutor will attend the assessment Boards held at WIUT and also moderate the assessment of students prior to the work being presented to the external examiner.

The liaison tutor for the BSc(Hons) Business Information Systems

Kami Sivagurunathan

Email: K.Sivagurunathan@westminster.ac.uk

External Examiners

A key part of UK Higher Education quality assurance is the role of independent External Examiners. External Examiners play an important role in the University of Westminster's quality assurance and enhancement processes by ensuring that our awards meet an appropriate standard and that students have been fairly assessed. External Examiners are appointed to each award/programme offered by the University (or sometimes to groups of related courses or subject areas).

External examiners are unable to respond to any individual queries about the assessment process or outcomes, and any contact will be reported to the University of Westminster. Where students have concerns about the assessment process or the quality of the provision, they should first speak directly to their course leader.

For the BSc (Hons) in Business Information Systems the external examiners are as follows:

Name:	Position:	Institution Company:	or	Board appointed to:

Important Information relating to Assessment

The University of Westminster Academic Regulations are the definitive regulations that govern all academic matters.

Academic Misconduct.

As an academic community, all students and staff at the University of Westminster are expected to demonstrate the highest standards of academic conduct. The University's expectation is that all marks obtained by students must result from the student's own efforts to learn and develop. Cheating and plagiarism have the objectives of deceiving examiners and gaining an unfair advantage over other students. This is unethical. It also threatens the integrity of the assessment procedures and the value of the University's academic awards.

While you are studying here, your academic performance will be assessed on the basis of your own work. Anyone caught cheating in exams/in-class tests or through coursework assignments will be subject to formal investigation in accordance with Section 10 of the [University's Handbook of Academic Regulations](#).

It is your responsibility to ensure that you are not vulnerable to any allegation that you have breached the assessment regulations. Serious penalties are imposed on those who cheat. These may include failure in a module or an element of a module, suspension or exclusion from your course and withdrawal of academic credits awarded previously for modules which have been passed.

For more information and details of what is considered an assessment offence can be found at registrar.wiut.uz

Late Coursework

The University of Westminster operates a two-tier penalty system for late submission of coursework.

- If students submit coursework late but within 24 hours of the published deadline, the work will be marked and will have ten percentage points of the overall available marks deducted, to a minimum of the pass mark (40% at undergraduate level, 50% at postgraduate level)
- If students submit coursework more than 24 hours after the specified deadline, a mark of zero will be awarded for the work in question

University regulations governing coursework submission and deadlines are detailed within Section 6 of the [Handbook of Academic Regulations](#).

Fit to Sit

The University of Westminster operates a '[fit to sit](#)' policy, which means that if you submit a piece of coursework or sit an exam and/or in-class test etc. you have deemed yourself fit to do so. It is your responsibility to determine if you are fit to participate in assessment or if a mitigating circumstances claim should be submitted. You cannot submit a mitigating circumstance claim for poor performance in assessment(s).

Mitigating Circumstances

Mitigating Circumstances are serious unforeseen, unpreventable circumstances that significantly disrupt a student's ability to undertake assessment.

There are four absolute conditions for the acceptance of an MC claim, and failure to meet one or more of these will mean your claim is rejected. Your original, independent documentary evidence must demonstrate that the circumstances:

- were unforeseen
- were out of your control and could not have been prevented
- relate directly to the timing of the assessment
- meet the relevant specific conditions relating to documentary evidence

Please refer to Section 11: Mitigating Circumstances of the University's [Handbook of Academic Regulations](#).

All MC claims must be submitted through WIUT SRS and hard copies of original evidence must be submitted in accordance with instructions below no later than 5 working days after the end date specified on the documentary evidence. In order to submit your claim, you need to follow the steps below:

- a) Login to the WIUT SRS choose Mitigating Circumstances
- b) Choose "New MC claim" and fill in the form that appears
- c) Print out the filled MC form from SRS, attach all original evidence to the printed form, put the form with evidence attached in the plastic sleeve and submit it to the MC submission box, which is located outside room of IB118.

Additional information and claim forms are available at registrar.wiut.uz

Academic Regulations

Award

The University of Westminster Academic Regulations are the definitive regulations that govern all academic matters.

For information on progression, re-assessment and final award calculation, please refer to Section 17 of the Handbook of Academic Regulations, available at registrar.wiut.uz

Changing Course

If you want to transfer from one course to another within the University, you must do so within the first two weeks of commencing your studies, or at the end of the academic year. In addition, you must also:

- Discuss and gain the approval of the Course Leader for the current course and the Course Leader for their new programme;
- Seek guidance from the Course Leader and Deputy Dean on Learning Environment on the implications of the proposed transfer, including University fees, funding and visas; and
- Complete and submit the Course Change Request, available at Registrars Portal at registrar.wiut.uz

It is then your responsibility to ensure that you have obtained the full agreement from both your current and the new Course Leader and completed the standard form. This process must be completed before changing course.

There is no guarantee that once you have been accepted onto one course at the University that you will be able to transfer to another.

If you want to transfer from one course to another at another institution, in addition to the above you must gain the approval of the Course Leader for the current programme and secure a place at the new institution and chosen programme of study.

Exclusion

In certain circumstances, usually where students have failed a significant proportion of modules attempted, a student may be excluded from their course on academic grounds. Please refer to Section 17 of the University's [Handbook of Academic Regulations](#).

Interruptions

An interruption is an extended period of authorised absence from the course. A period of interruption may be taken by a student at the student's discretion or required by the University on the grounds of the student's health and/or well-being.

University regulations governing the interruption of studies are detailed within Section 17 of the [Handbook of Academic Regulations](#)

Withdrawing from the course

If you would like to withdraw from your study you need:

- to fill in and sign **Withdrawal of study report form**
- to personally submit withdrawal form to Ask WIUT

In case if you cannot submit it personally we would kindly ask you to print the form you can get it on **registrar.wiut.uz** fill in by handwriting and send us (undergraduate@wiut.uz) the scanned version. Please note that together with withdrawal form **Student's checklist** also should be submitted signed to Undergraduate Office.

University regulations governing the withdrawal from a course are detailed within Section 17 of the [Handbook of Academic Regulations](#)

Course structure

This section shows the core and option modules available as part of the course and their credit value. Full-time Undergraduate students' study 120 credits per year. The course structure is validated by the University of Westminster every 5 years, but the structure can change by adapting to feedback from a variety of sources

Modules are described as:

Core modules are ones that must be undertaken and passed by all students on the course.

Option modules are related to your specific course from which you must choose.

Electives modules: from the WIUT module catalogue(subject to pre-requisite requirements and availability).

Level 4				
Module code	Module title	Status	UK credit	ECTS

4BUIS008C	Fundamentals of Programming	Core	20	10
4ECON006C	Introduction to Statistics and Data Science	Core	20	10
4MNST001C	Introduction to Management and Organisational Behaviour	Core	20	10
4BUIS011C	Web Technology	Core	20	10
4BUIS012C	Computer Science Fundamentals	Core	20	10
One option or One elective module from the list below				
4COSC012C	Mathematics for computing	Option	20	10
4GPDS001C	Graphic design	Option	20	10
	Any module from the WIUT module catalogue	Elective	20	10
Credit Level 5				
Module code	Module title	Status	UK credit	ECTS
5COSC018C	Object Oriented Programming	Core	20	10
5BUIS009C	Database Systems Development	Core	20	10
5BUIS011C	Information Systems Management	Core	20	10
Three Option modules or Two Options modules and One Elective modules from the list below				
5COSC016C	Business Intelligence Systems	Option	20	10
5COSC017C	Web Application Development	Option	20	10
5BUIS012C	Mobile Applications Development	Option	20	10
5BUIS013C	Network Operations	Option	20	10
5BUIS015C	Game development	Option	20	10
	Any module from the WIUT module catalogue	Elective	20	10
Award of Diploma of Higher Education available				
Credit Level 6				
Module code	Module title	Status	UK credit	ECTS
6BUIS007C	Business Information Systems Project	Core	20	10
6COSC013C	Developing Digital Enterprise	Core	20	10
Four Option Modules or Three Option Modules and One Elective from the list below				
6BUIS010C	Software Quality, Performance and Testing	Option	20	10
6BUIS011C	Concurrent Programming	Option	20	10

6BUIS014C	Distributed Systems and Cloud Computing	Option	20	10
6BUIS015C	ERP Design and Implementation	Option	20	10
6COSC014C	Internet of Things	Option	20	10
6COSC015C	CGI and Its Implementation	Option	20	10
6COSC016C	Information Security	Option	20	10
6BUSS008C	Strategy in a Complex World	Option	20	10
6PJMN004C	Project Management	Option	20	10
6MARK018C	Digital Marketing	Option	20	10
6COSC017C	Machine learning and Data Analytics	Option	20	10
	Any module from the WIUT module catalogue	Elective	20	10

Please note: Not all option modules will necessarily be offered in any one year. In addition, timetabling and limited spaces may mean you cannot do your first choice of modules.

Academic regulations

The current Handbook of Academic Regulations is available at westminster.ac.uk/academic-regulations or on the Academic Registrars Portal on the WIUT intranet

Your Course

PROGRAMME SPECIFICATION

The programme specification that details the validation requirements can be obtained from the following link to the WIUT Intranet

[http://registrar.wiut.uz/SiteAssets/SitePages/Course%20Handbooks/BSc\(Hons\)%20Business%20Information%20Systems%20Programme%20specification%202020-2021.pdf](http://registrar.wiut.uz/SiteAssets/SitePages/Course%20Handbooks/BSc(Hons)%20Business%20Information%20Systems%20Programme%20specification%202020-2021.pdf)

Module Proformas

The module proforma provides detailed information on the core and option modules linked to this course. You can find all your course module information at the end of this document.

MODULE PROFORMA		
Full module title: Fundamentals of Programming		
Module code: 4BUIS008C	Credit level: 4	Length: year long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Vasiliy Kuznetsov		
Extension: 652	Email: vkuznetsov@wiut.uz	

Host course and course leader: Business Information Systems. Shirin Primkulova	
Status: Core	
Subject Board: BSc Business Information Systems	
Pre-requisites: none	Co-requisites: none
Study abroad: none.	
Special features: none	
Access restrictions: none.	
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No	
<p>Summary of module content:</p> <p>The module introduces basics of programming, fundamental data structures and classical algorithms for searching and sorting, computer architecture and number systems, and traditional software development methodologies. Emphasis is placed on practical experience with a suitable programming language.</p>	

Learning outcomes

By the end of the module the successful student will be able to:

1. Identify the various activities involved in translating a given problem into a corresponding executable program;
2. Produce syntactically correct and functional program;
3. Have theoretical foundations of information systems and trends in application of information systems;
4. Understand and implement fundamental data structures using classes;
5. Understand and implement the concept of persistence in relation to objects;
6. Comprehend some of the classical algorithms for sorting and searching.

Course outcomes the module contributes to:

- L4.2. Identify the various activities involved in translating a given problem into a corresponding executable program; produce syntactically correct programs/websites for business needs.
- L4.5. Identify and use tools involved in the development of Information Systems

Indicative syllabus content

- The requirements of a prototyping language, and how some current commercial languages fulfil these requirements.
- Key concepts of programming languages incorporating programming structures, data types, procedures, debugging and testing.
- Creation of a simple relational database, execution of SQL queries from the designed interface, and concept of persisting objects to databases
- Design for a user interface, and coding the functionality required to produce a working prototype.
- General overview of computer organization, processor architecture, memory.
- Relationship between data structures and algorithms; standard algorithms for searching, sorting.
- Perform elementary analysis of algorithm complexity.
- Specification and implementation of fundamental data structures (such as stacks, queues, trees).

Teaching and learning methods

The module will consist of only practical sessions (2 hours a week) in the first semester and a mix lecture (1 hour a week) and practical seminars (2 hours a week).

Theoretical part of the sessions will introduce key concepts of object oriented programming while practical part will focus on problem solving. Exercises will be set and solved by tutor first and after some practice students will be provided with independent work exercises.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	8
Seminar	Scheduled	40
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means of two PC lab tests and one coursework.

First PC lab test will be formative and will be used to provide feedback to the students.

The tests will be time constrained and will require students to apply knowledge and skills acquired on the module to solve given problems. In class test covers LO1 and LO2.

The coursework will enable students to use their understanding of different data structures and algorithms to solve real life problems. Coursework 1 covers LO3, LO4, LO5 and LO6

Assessment criteria

Formative assessment, PCLAB test 1 – This will be a time constrained closed book assignment in the PC laboratory. Students are expected to produce a simple application for given problems. In order to excel in the component, students should be able to apply proper user input validation, perform requested computation and output the result in the right format. The component covers LO1 and LO2. Formative assessment.

PCLAB test 2 – This will be a time constrained closed book assignment in the PC laboratory. Students are expected to produce a simple data processing application for the provided database. In order to excel in the component, students should be able to apply proper user input validation, perform requested data processing and implement typical operation of data-driven applications. The component covers LO1 and LO2.

Coursework 2 – This will be an individual assignment. Students will be given a case study and will be required to develop a database application implementing typical data processing operations. In order to excel in the component, students should demonstrate ability to develop custom

implementation of classical data structures and algorithms as well as automate custom data processing logic of moderate complexity. The component covers LO3, LO4, LO5 and LO6.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
<i>In-class test</i>	40%	30%		<i>In-class test</i>
<i>Coursework 1</i>	60%	30%		<i>Coursework</i>

Synoptic assessment

N/A

Sources

1. Nagel C., (2018). Professional C# 7 and .NET Core 2.0, Wrox
2. Jamro M., (2018). C# Data Structures and Algorithms, Packt Publishing.
3. Perkins B., Hammer J., Newsome J., (2018). Beginning C# 7 Programming with Visual Studio 2017. Wrox.
4. <https://dotnet.microsoft.com/learn/>
5. <https://www.udemy.com/course/understandingc/>
6. <https://www.c-sharpcorner.com/>
7. <https://www.codeproject.com>
8. <https://stackoverflow.com>

MODULE PROFORMA		
Full module title: Introduction to Statistics and Data Science		
Module code: 4ECON006C	Credit level: 4	Length: Year Long
UK credit value: 20 credits	ECTS value: 10 credits	
Faculty and Department: WIUT		
Module Leader(s): Olmas Isakov		
Extension: 643	Email: o.isakov@wiut.uz	
Host course and course leader: EC (Hons) Economics; Rustam Sulaymanov		
Status: Core		
Subject Board: EC (Hons) Economics		
Pre-requisites: None	Co-requisites: None	
Study abroad: N/A		
Special features: None		
Access restrictions: None		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
<p>Summary of module content</p> <p>This module introduces students to the basic statistical concepts, critical reasoning and understanding of the nature of data, which they may need to apply in the other courses they intend to study in their degree. The emphasis of the course is on the application of statistical methods to tackle real-world, data rich problems in business and academia. Attention will focus on the calculation and interpretation of tables and results and the appropriate method to approach various aspects of real world situations. Treatment is at an elementary mathematical level (basic calculus). Concepts of probability, statistical bias, randomness, random variables, statistical inference, basic data exploration and visualization techniques, data analytical methods, simple and multivariate analysis are introduced. Students become more time efficient and enhance their analytical skills through hands on experience with modern statistical tools.</p>		

Learning outcomes

By the end of the module the successful student will be able to:

1. Define the concepts of probability, randomness, different distributions and statistical inference.
2. State the hypotheses and provide interpretations for statistical test results.
3. Define data exploration and list various techniques of data visualization.
4. Apply a variety of methods for explaining, summarizing and presenting data and interpreting results by using appropriate diagrams, titles, labels.
5. Explain various machine learning techniques and analyze data at scale using various statistical softwares.

Course outcomes the module contributes to:

- L4.4 Gather, filter and manipulate relevant data for presentation and quantitative analysis, interpret results in a business context.
- L4.5 Communicate results in an appropriate format with regard to audience and desired effect using computer application as appropriate.

Indicative syllabus content

This module introduces some of the basic ideas of theoretical statistics, emphasizing the applications of these methods and the interpretation of tables and results.

Basic background: Elementary summation signs, elementary probability, Venn and tree diagrams.

Data collection: Elements of survey design, the stages of a survey, ideas of randomness, observational and experimental data.

Data presentation and analysis: Descriptive statistics, measures of central location and dispersion, numerical and graphical representation.

The Normal Distribution: Estimation of mean, proportion, standard deviation, confidence intervals and hypothesis testing.

Probability: Random experiment, sample space, event; Complement, union, intersection; Probability and its axioms; conditional probability; independence; Law of total probability, Bayes' theorem; Permutations and combinations; Sampling with and without replacement;

Random variables and distributions: Random variables; Discrete and continuous distributions; cumulative distribution function; Probability mass function; Common discrete distributions; Probability density function; Properties of continuous random variables; Common continuous distributions.

Bivariate distribution: Two random variables; Independence; Expected values; Covariance.

Point estimation: Parameters and estimators; Different estimators; Properties of estimators; Bias; Variance; Mean squared error; Consistency; Finding estimators.

Interval estimation: Intervals for the mean of a normal population; Intervals for mean differences; Confidence intervals for mean and proportions.

Hypothesis testing: Hypotheses; Test statistics and critical values; Type I and type II errors; Testing hypotheses about population means; Building Confidence Intervals; rejection region and p-values; Tests for binomial probabilities of success; Testing hypotheses about population variances; One-sample test and Two-sample test.

Analysis of variance: One-way ANOVA and Two-way ANOVA; hypothesis testing; test for main and interaction effects.

Correlation: Correlation between two random variables; covariance.

Simple linear regression: Fitted model for simple linear regression; Estimation of regression intercept and slope; Point estimation of parameters; Inferences about regression coefficients: confidence intervals and hypothesis testing.

Multiple Linear Regression: Fitted model for multiple linear regression; Least squares fitting; Coefficient of Multiple Determination; Main assumptions and diagnosis of Multiple Linear Regression. Inferences about parameters of Multiple

Data at Scale: working with big data, data mining and cleaning, data exploration and visualization techniques using MS Excel and some other statistical software (Stata, R, Tableau). Setting up train and test data.

Data exploration and visualization: scatterplots, line graphs, bar and pie charts, histograms, heat maps, word clouds.

Classification: tree-based methods; support vector machines, prediction accuracy.

Unsupervised learning techniques: clustering and associations; k-means, hierarchical and probabilistic clustering; feature reduction through principal component analysis, prediction accuracy.

Teaching and learning methods

Lectures will cover concepts of the module followed by practical activities during practical classes and workshops. Practical exercises, simulations, interactive discussions, case studies, pair and group work during workshops are used to reinforce students' involvement and learning. During the workshops students will be gaining hands-on experience using various softwares to conduct data exploration, data visualization and statistical tests. They will be also working with classmates in providing solutions to class exercises which will enhance students' teamwork skills.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	
Practical Classes and workshops	Scheduled	48
Project supervisor	Scheduled	
Demonstration	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		60
Placement	Placement	
Independent study	Independent	140
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

This module is conducted using both formative and summative types of assessments. The goal of formative assessment is to monitor student learning to provide ongoing feedback that can be used by students to improve their learning. Students are provided with various tasks during the practical classes and workshops and they are asked to provide solutions in individual and group settings. During the sessions the instructors provide feedback on the students' work that helps students identify their strengths and weaknesses and target areas that need work.

There are three summative types of assessments during this yearlong module: Midterm exam, Individual Coursework and Final Exam.

Midterm exam takes place during the exam week of Semester 1. It is an in-class test and worth 40% of overall mark. Students are given both theoretical and practical exercises to solve during time-constrained examination. These exercises involve data exploration, data visualization, and problems related to various types of probability distributions.

Individual Coursework assignment takes place during the Semester 2. It is also an individual assignment and worth 20% of overall mark. Students are provided with datasets and the deadline is set during semester 2. Students are required to submit their Coursework by that deadline. This assignment comprises of tasks related to statistical testing, analysis and visualization in conjunction with introductory machine learning techniques.

Final exam takes place during the exam week of Semester 2. It is worth 40% of overall mark. This test serves as summative assessment. The final exam evaluates the students' knowledge of statistical theories, various distributions, hypothesis building, and providing interpretations and conclusions based on statistical test results.

Assessment criteria

Midterm Exam assignment is designed to let the students understand various types of probability distributions and apply the appropriate techniques to visualize the data. Students will be assessed on accuracy in problem solving, consistency and timeliness. (LOs 1, 3)

Individual Coursework assignment is designed to let the students understand various statistical and machine learning methods and interpret their method outcomes obtained from statistical softwares. Students will be assessed on accuracy, consistency, proper presentation and interpretation of statistical test results and timeliness. (LOs 2, 4)

In Final Exam, students will be expected to use appropriate statistical methods in examining the relationships between variables. Students will work under time constraint to show an understanding of statistical and data science concepts as applied to practical, real-world applications. The main criterion is precision and accuracy as well as the presentation and interpretation of test results for use in academic and business reports (i.e. using Excel, R or other statistical packages). (LOs 1, 2, 5)

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark %	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
Midterm Exam	40%	40%		Comprehensive time-constrained closed-book test is held during the exam week of Semester 1.
Coursework	20%	40%		Individual take home assignment with set deadline.
Final Exam	40%	40%		Comprehensive time-constrained closed-book test is held during the exam week of Semester 2.

Synoptic assessment

N/A

Sources

1. Anderson, D., D. J. Sweeney & T. A. Williams. Statistics for Business and Economics, 11th edition, South-Western, 2011.
2. Dummeldinger, M. Microsoft Excel Manual for Statistics for Business and Economics, Prentice Hall, 2005.
3. Fernandes, M. Statistics for Business and Economics, Ventus Publishing, 2009.
4. James, G., D. Witten, T. Hastie & R. Tibshirani. An Introduction to Statistical Learning with Applications in R. Springer, 2013.
5. McClave, J., P. G. Benson & T.T. Sincich. Statistics for Business and Economics, 12th edition, Prentice Hall, 2012.
6. Mittelhammer, R. Mathematical Statistics for Economics and Business, 2nd edition, Springer, 2013.
7. Newbold, P., W. L. Carlson & B. M. Thorne. Statistics for Business and Economics, Global edition, Pearson, 2013.
8. Peck, R., C. Olsen & J. Devore. Introduction to Statistics & Data Analysis, 4th edition. Brooks/Cole, 2012.
9. Wikham H. & G. Grolemond. R for Data Science. O'Reilly, 2017.

Electronic Resources

1. <https://www.elearninglearning.com/statistics/>
2. <https://www.coursera.org/specializations/jhu-data-science>
3. <https://www.kaggle.com/general/69415>
4. <https://www.udacity.com/course/intro-to-machine-learning--ud120>

MODULE PROFORMA		
Full module title: Introduction to Management and Organisational Behaviour		
Module code: 4MNST001C	Credit level: Level 4	Length: year long
UK credit value: 20 credits	ECTS value: 10 ECTS	
College and School WIUT		
Module Leader(s): Imran Safarov		
Extension: 653	Email: isafarov@wiut.uz	
Host course and course leader: BA (Hons) Business Management; Iroda Komilova		
Status: Core		
Subject Board: BA (Hons) Business Management.		
Pre-requisites: None	Co-requisites: None	
Study abroad: n/a		
Special features: n/a		
Access restrictions: n/a		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module introduces student to a managerial approach to organisational behaviour. The module is aimed at developing basic skills necessary for managing individuals and groups and explains how organizational structure, culture and operations interact and influence behaviour of employees. Students will discover the challenges of management in a contemporary business environment, managers' roles and functions on various organisation levels as well as internal and external factors influencing business management decisions. Students will focus their efforts on identifying factors that influence organizational effectiveness and integrating aspects of managerial activities.		

Learning outcomes

Upon completion of this module, the successful student should be able to:

1. Explain management process and manager's functions at different levels of organization
2. Define and discuss the evolution of management theory and practice, current issues and future trends in management
3. Identify and analyse the role of individual differences, motivation, group dynamics, culture, leadership, diversity, organizational culture and structure in organizations by means of conducting research
4. Discuss and evaluate factors that affect business management and their implications for change

Course outcomes the module contributes to:

- L4.1 Demonstrate a general knowledge and understanding of the core principles and concepts of business and their application in practice (KU);
- L4.2 Demonstrate an understanding of the functions and processes of a business organization (KTS);
- L4.6 Present and communicate effectively using clear, structured and coherent arguments, in various business settings, through a range of communication channels and tools (KTS);

Indicative syllabus content

- Managers and organisations today: functions, processes and roles
- Organisational setting, goals, strategy and responsibility
- The roles of managers: managerial behavior and effectiveness
- The nature of leadership: styles, skills, models
- Individual differences: the role of personality, attitude and values in organizational behavior
- Employee learning and perception
- The role of emotions in organisations
- Fundamentals of motivation and commitment
- Groups and teams: work process and behavior
- Organisational structure and design
- Managerial power and control
- Organisational development: culture, conflict and change
- Organizational effectiveness

Teaching and learning methods

This module will consist of lectures, seminars, practical workshops and demonstrations/guest lectures by practitioners. Lectures will introduce key concepts and theories and give examples from industry. Seminars will be interactive involving class discussion, case analysis, reflective learning and presentations. Demonstrations (extracurricular) will vary depending on the invited speaker and his expertise; they can be case study based demonstrations or reflective lectures of their practice.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	36
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	12
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work-based learning	Scheduled	
Total Scheduled		60

Placement	Placement	
Independent study	Independent	140
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

In this module, assessment will be done through a Coursework 1 (Presentation) 30%, Coursework 2 30% and Exam 40%.

The Coursework 1 is presentation which highlights the students' identification of a management problem as well as recommendations on how to improve the situation.

The Coursework 2 is a group written report. It will focus on problem-based learning, with students selecting a management problem and analysing the situation and proposing solutions. While students work in learning teams and reflective sets, all marks are individual. It will assess LO1 and 3.

Exam is a closed book, time constrained written exam based on a case study that students would be able to read and analyse at home and present solutions in class under exam conditions. It will address the ability of the students to apply and reflect on the OB and management theories covered in the module. Student will have to present their ability to command various theoretical models and paradigms explaining OB and management. It will assess LO2 and 4.

Assessment criteria

Students will be asked to analyse major concepts covered on the module by doing both primary and secondary research, reflect on their findings and make appropriate recommendations. Students will also have to take a deep look into the assessment cases and identify the roots of the problems as well as make justified suggestions as to overcoming the challenges faced by leaders and managers in the contemporary business environment.

The group work will be managed in accordance with approved WIUT group work policy which can be found from the following link:
<http://registrar.wiut.uz/SiteAssets/SitePages/Academic%20Council%20agendas%20and%20papers/3.6%20%20Group%20work%20policy%20WIUT%20v5.pdf>

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark %	Qualifying set	Assessment type
Coursework 1	30%	30%		<i>Individual presentation</i>
Coursework 2	30%	30%		<i>Group written report</i>
Exam	40%	30%		<i>Final individual case-study based</i>

Synoptic assessment

N/A

Sources

1. Robbins, S., Judge, T., Millett, B. and Boyle, M. (2017). Organisational behaviour. Melbourne: Pearson Australia.
2. Karthick, K. (2010). Organisational Behaviour. New Delhi: Himalaya Pub. House.
3. Burns, J. (2012). Leadership. New York, NY: Open Road Integrated Media.
4. Kotter, John P. (2013). Management is (Still) Not Leadership. Harvard Business Review. Available at: <https://hbr.org/2013/01/management-is-still-not-leadership>. 18 Jan 2016
5. Pink, D. (2011) Drive: The Surprising Truth About What Motivates Us, Penguin Group (USA) Inc
6. Adair, J. (2009). How to Grow Leaders: The Seven Key Principles of Effective Development.
7. Mitchell, J., Mitchel, N.,I and Gudzenko, B.,(2012) Leadership Development
8. Bounds, G. (2016), Management a Total Quality Perspective, 3rd edition, Souh Western College Publishing

Link to the online sources

1. International Academic Journal of Business Management <https://iaiest.com/journal.php?id=2>
2. Journal of Organizational Behavior <https://www.wiley.com/en-us/Journal+of+Organizational+Behavior-p-9780JNRL01270>
3. https://www.jstor.org/stable/4165814?seq=1#metadata_info_tab_contents

* Essential reading list will be updated every year by the module team.

Date of initial validation:

Dates of approved modifications:

Date of re-validation/review:

MODULE PROFORMA		
Full module title: Web Technology		
Module code: 4BUIS011C	Credit level: 4	Length: year long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Bunyod Khoshimkhujaev		
Extension: 655	Email: bkhoshimkhujaev@wiut.uz	
Host course and course leader: Business Information Systems. Shirin Primkulova		
Status: Core		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module provides theoretical introduction with Internet infrastructure and services as well as a practical introduction to concepts and terminology used in design and implementation of web based information systems, i.e. study of fundamental technologies of the web - including HTML5, CSS3 (markup languages), Javascript (programming language) and base technologies for building minimum viable web application from scratch and managing its deployment process.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Apply modern web technologies for processing, identifying, and presenting of information on the static web pages.
2. Demonstrate technical skills required for web developers through the use of relevant technologies - HTML, CSS, and corresponding technologies for improving development flow - pre-processors, template engines, development environments, etc.
3. Design basic accessible, responsive and user-friendly user interfaces based on the best practices and standards used worldwide.
4. Illustrate how the client-server architecture can be applied to build full-fledged dynamic web applications.
5. Explain how to define routes and logic/controllers to handle user requests to the web application.
6. Develop basic web application from scratch as well as using modern web frameworks. Assess how frameworks can simplify development process.
7. Deploy web application using both hand coding and appropriate software tools to the live server. Perform basic server configuration for properly serving user requests.

Course outcomes the module contributes to:

- L4.2. Identify the various activities involved in translating a given problem into a corresponding executable program; Produce syntactically correct programs/websites for business needs.
- L4.4. Communicate results in an appropriate format with regard to audience and desired effect using computer applications as appropriate
- L4.5. Identify and use tools involved in the development of Information Systems.

Indicative syllabus content .

- Internet infrastructure and environment.
- Website planning. Goals and objectives. Design and construction strategies. Maintenance and monitoring. Navigation and site structures. Management of design and construction process. Semantic web.
- An overview of HTML5, website construction and publishing tools. Styling and layout concepts (CSS3)
- Responsive and adaptive web pages. Using third-party CSS libraries.
- Interactive components. Writing scripts on JavaScript, embedding third-party Javascript libraries.
- HTTP protocol. Routing and controllers for handling client requests.
- Template engines. Templated extension (reusability of the templates) and data interpolation, etc.
- REST API.
- Development and deployment of the full-fledged web application. Hosting and domain name management.

Teaching and learning methods

The module will consist of seminars (2 hours a week).

Theoretical part of the seminars will introduce key concepts of web development while practical part will focus on basic product development. Exercises will be set and solved by tutor first and after some practice students will be provided with independent work exercises.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	
Seminar	Scheduled	48
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means of two courseworks. The courseworks will enable students to use their understanding of web application planning, designing based on the usability and accessibility principles/standards to create a rigorous and carefully developed piece of work.

Coursework 1 - This will be an individual assignment. Students will be given a case study (various topics -i.e. Bookstore, Social network, Ticket booking application) and will be required to develop a front-end of the web application using modern web technologies and design principles. Coursework 1 covers LO1, LO2, LO3.

Coursework 2 - This will be an individual assignment. Students will be given a case studies and will be required to develop a back-end for the web application using the indicated web framework. Coursework 2 covers LO4, LO5, LO6, LO7.

Assessment criteria

Students are going to be assessed on the following criteria:

A pass level would represent the ability to demonstrate a basic understanding of the subject. To achieve pass mark, students should be able to:

- apply standard web technologies (HTML, CSS) to structure web pages and style its elements.
- apply front-end scripting language (Javascript) to manipulate DOM elements or make them interactive, fetch data from Internet and properly display them on the web pages.
- explain how the the high-level web protocols work, and how APIs, Web Services, & RESTful architectures are built to move data around.
- apply back-end scripting language (Javascript) to build basic application (business logic) layer of the web application and integrate it with front-end.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
Coursework 1	50%	30%		Coursework
Coursework 2	50%	30%		Coursework

Synoptic assessment

N/A

Sources

1. Don't Make Me Think, Revisited 3rd Edition by Steve Krug. New Riders Publishing, 2014
2. Learning Web Design, 4th Edition. A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics. Jennifer Niederst Robbins. O'Reilly Media, 2012
3. Basics of Web Design HTML5 & CSS3, Second Edition. Felke-Morris, Terry. Addison-Wesley, 2014
4. Programming the World Wide Web, (Six Edition), by Robert Sebesta, Addison-Wesley 2010

Online resources

1. <http://www.htmlgoodies.com>
2. <http://www.webmonkey.com>
3. <http://www.w3.org/>
4. <http://www.javascript.com>
5. <http://www.jquery.com>
6. <http://www.codecademy.com>

MODULE PROFORMA		
Full module title: Computer Science Fundamentals		
Module code: 4BUIS012C	Credit level: 4	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: Business Information Systems		
Module Leader(s): Olga Yugay		
Extension: 643	Email: oyugay@wiut.uz	
Host course and course leader: Shirin Primkulova		
Status: Core		
Subject Board: BSc Business Informations Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: This module introduces fundamental computer science topics. Core information technology concepts, components, technology trends and its applications are also covered within the module content.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Identify and interpret the numerical processes running within computer system.
2. Describe the tasks and features of each of the main components of a computer system and how these components work together.
3. Show understanding of the von Neumann architecture and stored program paradigm.
4. Explore and experiment with algorithms and other relevant computer science topics.
5. Explore current trends in technology and learn to use relevant resources and tools
6. Demonstrate a thorough knowledge of basic command line commands and git

Course outcomes the module contributes to:

- L4.2. Identify the various activities involved in translating a given problem into a corresponding executable program; Produce syntactically correct programs/websites for business needs.
- L4.5. Identify and use tools involved in the development of Information Systems.

Indicative syllabus content

- Brief overview of computing history and computing software
- Current trends in technology and use relevant resources/tools
- Application categories and forms
- Operating systems: definition and functions, history, architecture
- Memory management, process management, CPU scheduling algorithms

- Positional notation, number systems, conversion between different number systems, logical operations on the numbers
- Data representation: numbers, text (run length encoding, huffman encoding), image and graphics, sound representation
- Computer hardware components: circuits, CPU, RAM, ROM, secondary memory, caches, buses, I/O devices
- Principles of von Neumann fetch-decode-execute cycle
- Programming approaches, technology stack definition
- Basic sorting, searching algorithms
- Introduction into networks: definitions, topologies, OSI model
- Using command line and git

Teaching and learning methods

The module will employ a combination of teaching and learning methods such as lectures, seminars, and various formative assessments (online quizzes, tests). Workshops will also be organized to involve students in independent learning process, problem solving and group working.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	10
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed through coursework and examination.

The first component is a written coursework. The students will be asked to evaluate a given business case/cases/problem and use relevant technology tools (e.g. Git, Google Docs, Trello) and resources to meet the specified needs. The coursework covers LO2, LO3, LO5, LO6.

The second component is a final exam. It will be time-constrained, closed book exam. The exam will test students' understanding of information technology concepts, basic algorithms and other relevant computer science topics. The exam cover LO1, LO2, LO3, LO4, LO6.

There will also be a series of formative assessments in the form of quizzes, tests and tasks before the final exam in order to prepare students for the final examination.

Assessment criteria

Coursework 1 – The students will be asked to evaluate a given business case/cases and use relevant technology tools and resources to meet the specific needs. [LO2, LO3, LO4, LO5]

Pass mark criteria: For the pass mark students should demonstrate evidence of technology review from several sources and use of required tools and resources to meet specific needs.

Excellent mark criteria: For the excellent mark students should conduct a thorough research and produce a review relevant technologies for given business case/s while demonstrating awareness current trends in technology. Students also should demonstrate extensive use of required tools and resources to meet specific needs.

Mock exam- This will be a time constrained closed book examination held during the seminar to prepare students for real exam. Formative assessment. [LO1, LO2, LO3]

Final exam- This will be a time constrained closed book examination held at the end of the semester. [LO1, LO2, LO3]

Pass mark criteria: For the pass mark students should demonstrate understanding of basic computer science principles and apply relevant algorithms in solving basic problems

Excellent mark criteria: For the excellent mark, students should demonstrate a thorough understanding of covered computer science topics and properly apply relevant algorithms in solving advanced problems.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
Coursework 1	40%	30%		Coursework
Final exam	60%	30%		Closed exam

Synoptic assessment

N/A

Sources

1. N.Dale, Computer Science Illuminated. (2014)
2. J. Brookshear, Computer Science – An Overview. (2012)
3. R. White, How computers work. (2014)

Online resources

1. Crash Course into Computer Science,
<https://www.youtube.com/watch?v=tplctyqH29Q&list=PL8dPuuaLjXtNIUrzyH5r6jN9ullqZBpdo>
2. <https://www.khanacademy.org/computing/computer-science/how-computers-work2>

MODULE PROFORMA		
Full module title: Mathematics for Computing		
Module code: 4COSC012C	Credit level: 4	Length: semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Abdumalik Djumanov		
Extension:	Email: adjumanov@wiut.uz	
Host course and course leader: BSc in Business Information Systems. Shirin Primkulova		
Status: Option		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
<p>Summary of module content:</p> <p>This module delivers the fundamental concepts and methods of mathematics required by computer based engineers required in the fields of Computer Systems, Networking, Communications and Security. Thus equipping the student with mathematical techniques in the fields of algebraic techniques, set theory, matrix algebra, probability, combinatorics, statistics and Boolean algebra.</p>		

Learning outcomes

By the end of the module the successful student will be able to:

1. Use fundamental mathematical notation to accurately carry out basic algebraic manipulations;
2. Apply linear algebra to solve systems of linear equations in terms of vectors and matrices;
3. Apply concepts of sets, relations and functions to solve simple problems;
4. Apply combinatorics and statistics to evaluate probability of events;
5. Apply the fundamental principles of calculus for problem solving;
6. Use the basic concepts of Boolean algebra and Logic to solve simple problems.

Course outcomes the module contributes to:

L4.3. Gather, filter and manipulate relevant data for presentation and quantitative analysis, interpret results in a business context.

Indicative syllabus content

- **Algebraic Methods:** Basic Algebraic manipulation, functions, modular arithmetic, surds, base systems, logarithms, roots of polynomials, simultaneous equations.

- **Matrices, Determinants:** Linear equations, matrix operations, addition, subtraction, multiplication, inverse, determinants, inverse of a matrix, Application of matrices, determinants solving simultaneous equations, computational approaches to solve sets of linear equations.
- **Probability:** basic probability, probability trees, Bayes's theorem, conditional probability.
- **Set Theory:** Introduction to the nomenclature of sets, operations of, extension to graph theory.
- **Combinatorics:** Introduction to permutations & combinatorics, binomial distributions, Poisson distribution.
- **Statistics:** data handling, standard deviation, distributions, Normal distribution, sampling.
- **Calculus:** gradients, limits, differentiation, integration.
- **Logic and Boolean algebra.**

All topics will be related to the computing based problems that students will encounter in their chosen degrees.

Teaching and learning methods

As students, you will attend a lecture (1 hours), a practical tutorial (2 hours) and computer based workshop (1 hour) every week. The lectures include introduction of the concepts and problem-solving techniques. The basis of each topic will be covered and this will be reinforced with demonstrations of their application to a given set of problems. To make the lectures interactive, problems will be given to provide the opportunity to apply what is covered, with the solution(s) subsequently demonstrated.

To develop required skills, students will have a set of practical exercises to be completed both during and outside the scheduled seminar sessions. Discussion of the problems will take place within the seminars that will be delivered in computer classes with use of MS Excel or other relevant application software as appropriate. Small seminar exercises are set on a weekly basis to assess competence in exploring basic mathematical ideas. A range of challenging problems will be discussed during the tutorials enabling you to demonstrate a greater degree of knowledge and problem solving skills. This will assist in your preparation for relevant challenging questions in the assessment.

The module extensively uses WIUT intranet/Moodle. In particular, detailed model answers/solutions of all exercises are uploaded there ensuring that self-directed learning.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	12
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

There are two closed book tests and an exam. The tests will progressively assess the material covered with the final exam where all topics will be assessed. The feedback given from the tests will identify key areas that you will need development in culminating in the final exam.

The Formative exercises will be in the form of short but many practice questions given on line on a weekly basis. The module team will provide timely feedback to students to comment on their progress in learning. The Formative practice tests will give the students an opportunity to sit an assessment under test conditions, and be given feedback so that they can check their knowledge and understanding.

Assessment criteria

All learning outcomes will be assessed via the tests and the final exam.

The two tests will test understanding and your ability to apply mathematical methods developed during the lectures and practiced through the problem sets provided on-line and via the seminars. The tests will be progressive assessing your knowledge and understanding of how to apply the given methods learnt.

Test 1 will cover LO1 and LO2 whilst Test 2 will use the topics and understandings covered by Test 1, and extend this to cover LO3 and LO4.

The Exam will cover all learning outcomes where the students will be tested on the ability to apply the methods for more advanced problems within the module, tutorials will be given using online material via WIUT intranet/Moodle to engage the students to problems sets where they will be given formative feedback on the problems tackled and their progress will be monitored covering all learning outcomes.

Formative feedback will be provided so that students can prepare for the summative assessments covering all the learning outcomes. Practice questions and feedback will be given for each topic covered in the lectures. The problems sets will be posted via intranet/Moodle and during the seminars solutions will be generated, thus allowing students to see how to break down a given problem and then apply the appropriate method to solve.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Test 1	25%	30%		<i>Written exam (closed)</i>
Test 2	25%	30%		<i>Written exam (closed)</i>
Exam	50%	30%		<i>Written exam (closed)</i>

Synoptic assessment

N/A

Sources

1. Croft, R. Davison, Mathematics for Engineers: A Modern Interactive Approach, 4th Edition, Pearson Education, 2015, ISBN: 978-1292065939.
2. Croft, R. Davison, M. Hargreaves, J. Flint, Engineering Mathematics: A Foundation for Electronic, Electrical, Communications and Systems Engineers, 4th Edition, Pearson Education, 2012, ISBN:978-0273719779.
3. H. Fox, W. Bolton, Mathematics for Engineers and Technologists, Butterworth-Heinemann 2002, ISBN: 978-0750655446.

MODULE PROFORMA		
Full module title: Graphic design		
Module code: 4GPDS001C	Credit level: 4	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Shirin Primkulova		
Extension: 652	Email: sprimkulova@wiut.uz	
Host course and course leader: Business Information Systems, Shirin Primkulova		
Status: option		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: This module introduces basics of graphic design where students will learn history and principles of graphic design, as well as focuses on developing technical and practical skills in digital typesetting, image making, composition, and layout, which they can apply for different business purposes. Students are introduced to appropriate software applications to practice in creating graphic works.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Demonstrate fluency in the vocabulary relevant to graphic design and its history.
2. Apply basic design principles to visually present ideas, information, products, and services.
3. Use modern graphic application in creation reproduction, and distribution of visual messages.
4. Discuss design history, theory, and criticism from a variety of perspectives, including art history, communication/information theory, and the social/cultural use of design objects.

Course outcomes the module contributes to:

- L4.4. Communicate results in an appropriate format with regard to audience and desired effect using computer applications as appropriate.

Indicative syllabus content

- Graphic design principles: balance, proximity, hierarchy, alignment, repetition, contrast, negative space
- Graphic design history
- Image based design, image making
- Typography: fonts, grids, space

- Colour: colour theory
- Logotype and icon design
- Composition and Layout
- Graphics software

Teaching and learning methods

Module will be delivered through a set of lectures, seminars and workshops. Theoretical information will be communicated during lectures and discussed during seminars, whereas the practical skills will be developed and trained during computer lab classes and workshops.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	8
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	4
Practical Classes and workshops	Scheduled	24
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

Gained skills and knowledge will be assessed by means of portfolio entries, in which students will be required to produce graphical works under given topics and criteria. Regular demonstrations will be conducted for the purpose of formative assessment. Portfolio covers LO1-LO4.

Assessment criteria

In order to achieve a pass mark, students need to demonstrate a clear understanding of the basic concepts discussed in the module and fair level of skills developed working with relevant software to produce graphic works.

For students to gain higher than pass mark their portfolio should respond to project briefs, and to be clear, focused, expressive, and communicative solutions to the stated problems. Portfolio entries should have an evidence of craftsmanship and appropriate selection of typefaces, images, composition, and implementation. [1, 2, 3, 4]

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
<i>Portfolio</i>	<i>100%</i>	<i>30%</i>		<i>Individual portfolio</i>

Synoptic assessment

N/A

Sources

1. A.Wheeler, (2012). Designing Brand Identity: An Essential Guide for the Whole Branding Team
2. R. Bringhurst (2013). The Elements of Typographic Style: Version 4.0
3. T. Samara (2005). Making and Breaking the Grid: A Graphic Design Layout
4. S. Heller, (2012). 100 Ideas that Changed Graphic Design
5. J. Müller-Brockmann. Grid Systems in Graphic Design
6. M. Evamy, (2015). Logo: The Reference Guide To Symbols and Logotypes
7. E. Lupton, (2010). Thinking With Type 2nd Ed (Design Briefs)

Online sources

1. JUST™ Creative - Graphic Designer, Logo & Brand Identity Specialist <https://justcreative.com>
2. Graphic design magazine with tutorials, resources and inspiration. <https://pixel77.com/>
3. 30 best must-read design books <https://www.canva.com/learn/best-design-books/>

MODULE PROFORMA		
Full module title: Object Oriented Programming		
Module code: 5COSC018C	Credit level: 5	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Said Abduvaliev, Dilshod Ibragimov		
Extension: 616	Email:sabduvaliev@wiut.uz, dibragimov@wiut.uz	
Host course and course leader: BSc (Hons) in Business Information Systems		
Status: Core		
Subject Board: BSc (Hons) in Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: This module introduces a new programming paradigm – Object Oriented Programming. The students will learn the difference between traditional procedural programming and Object Oriented Programming. They will also be introduced to the Object Oriented Programming principles, design patterns and UML class diagrams.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Illustrate an understanding of Object Oriented Programming principles.
2. Develop software using OOP language and utilise its core features.
3. Recommend an extendable and maintainable system architecture based on Object Oriented Programming principles.
4. Identify common cases for Design Patterns in software design. Show ability to apply Design Patterns and justify their use.
5. Choose appropriate tools for system design and documentation.

Course outcomes the module contributes to:

- L5.3. Identify components of the information systems life cycle including the major development processes/models, phases, activities, and issues relating to the development, management and maintenance of information systems.
- L5.4. Identify and apply the principles, methodologies, criteria and tools that can be employed in the analysis, specification, development, evaluation, and management of information systems Information and Data Modelling.
- L5.6. Develop middle-size solutions for business needs (desktop/web/mobile).

Indicative syllabus content

- Object oriented programming – building blocks, features and advantages.
- Classes and instances, attributes, operations, and identity. Associations and Multiplicity. Aggregation and Composite objects. Generalisation and Specialisation. Static and Dynamic models. Object interaction diagrams. Object oriented programming principles – Single responsibility principle, Encapsulate the change, Composition over inheritance, etc.
- Data persistence using object serialization and databases.
- Design patterns – creational, structural and behavioural. Such patterns as Singleton, Factory, Adapter, etc.
- UML diagrams – UML Class, Activity, Use Case, Sequence diagrams to convey the structure of an Object oriented software. State charts – states, events and transitions.
- Software design methodologies – Kanban, Agile, RAD, etc.

Teaching and learning methods

Module will be delivered through series of lectures and PC lab seminars and practical workshops. Theoretical part of the sessions will introduce key concepts of object oriented programming, design patterns, and software design methodologies, while practical part will focus on implementing the key concepts on practice. Exercises will be set and solved by tutor first and after some practice students will be provided with independent work exercises.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	
Tutorial	Scheduled	24
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	12
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means of on PC lab tests and one coursework.

The PC lab test will be formative and time constrained. It will require students to apply their knowledge and skills acquired to solve software design problems. In class test covers LO1 and LO2. The coursework will allow students to identify solutions to common software design problems and apply Design patterns to solve them. In addition, they will have an opportunity to show their ability to convey software design using diagrams. Coursework covers LO3, LO4 and LO5.

Assessment criteria

In-class test – This will be a time constrained closed book assignment in the PC laboratory.

Students are expected to produce simple code and class architectures for given scenarios or cases. In order to excel in the component, students should be able to create classes with proper attributes, methods, visibility. The proposed solution must be extendable and easy to maintain. The component covers LO1 and LO2. Formative assessment.

Coursework - Students will be required to identify business cases where design patterns should be used. Students will have to apply correct design pattern, justify its use and document their design using UML Diagrams. The component covers LO3, LO4 and LO5.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
In-class Test	50%	30%		<i>closed exam</i>
Coursework	50%	30%		<i>coursework</i>

Synoptic assessment

Sources

1. Freeman, E., Robson, E., Sierra, K., & Bates, B. (2004). *Head First design patterns*. Sebastopol, CA: O'Reilly.
2. Evans, E.. (2003). *Domain-Driven Design: Tackling Complexity in the Heart of Software*. Addison-Wesley Professional.
3. Hunt, A., Thomas, D. (1999). *The Pragmatic Programmer: From Journeyman to Master*. Addison-Wesley Professional.

Online reading

1. Alexander Shvets (2019). Refactoring.Guru. [online] Available at: <https://refactoring.guru>
2. OODesign (2018). Object Oriented Design. [online] Available at <https://www.oodeesign.com>
3. SourceMaking (2018). Source Making. [online] Available at: <https://sourcemaking.com>
4. Carl R. Castro (2009). Principles Of Object Oriented Design. [online] Available at: <http://wiki.c2.com/?PrinciplesOfObjectOrientedDesign>

MODULE PROFORMA		
Full module title: Database Systems Development		
Module code: 5BUIS009C	Credit level: 5	Length: year long
UK credit value: 20	ECTS value: 10	
College and School: BSc Business Information Systems		
Module Leader(s): Dmitriy Pochitaev		
Extension: 643	Email: dpochitaev@wiut.uz	
Host course and course leader: BSc Business Information Systems, Shirin Primkulova		
Status: Core		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none		
Special features: Students will have access and exposure to an appropriate Enterprise level database system such as SQL Server, Postgres or Oracle		
Access restrictions: none		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module provides a practical introduction to the basic concepts and terminology used in the design and implementation of data based information systems. The module provides a solid approach to database theory and its practical perception, investigates the fundamental issues related to Conceptual Data Modelling, Logical Data Models, and Relational Information Retrieval. The module investigates database issues related to data aggregation, query optimisation, web database connectivity, and multi-source databases.		

Learning outcomes

By the end of the module the successful student will be able to

1. Explain the fundamental concepts of the relational model and analyse its limits and current extensions.
2. Design and validate conceptual and logical data models.
3. Classify NoSQL database systems and appreciate their limits.
4. Write and optimise queries for achieving maximum execution performance.
5. Implement constraints as part of base relations or views.
6. Report and formulate data according to user specifications.
7. Analyse and implement issues related to data access with object relational framework and in plain SQL.

Course outcomes the module contributes to:

- L5.4. Identify and apply the principles, methodologies, criteria and tools that can be employed in the analysis, specification, development, evaluation, and management of information systems Information and Data Modelling.
- L5.5. Conduct critical analysis of a business problem/situation, formulate criteria to identify and employ an appropriate strategy to solve it.

Indicative syllabus content

- Introduction to Information Systems: The nature of data and information, systems theory
- Data models (e.g. Relational Model, E-R Model).
- Relational Data Model: Relational data structure, Domains, Properties of a relation, Relational Keys, Entity Integrity, Referential Integrity, Domain Constraints, Operational Constraints
- Mapping: map entities, map binary relationships, map ternary relationships, map supertype/subtype relationships
- Functional Dependencies: functional dependencies and keys, concept and purpose of normalisation process
- SQL: DML Implementation of unary and binary operators, SQL DDL.
- Constraints: Create and maintain constraints, valid constraints in SQL DDL
- Aggregating data, subqueries: grouping on expressions, grouping functions, window functions
- Subqueries, correlated and not correlated subqueries.
- Query optimisation: rules for heuristic query optimisation and cost based query optimization
- Limits of the Relational model: inefficiencies of the Relational Data Model and extensions like Object Relational Model for overcoming these limitations
- Classification of NoSQL database systems. Data access to selected NoSQL database systems.
- Data access applications: overview of various data access programming frameworks. Development of the applications to access databases.
- Examination and assessment of different database systems, techniques and languages.

Teaching and learning methods

The module will consist of weekly seminar sessions.

Theoretical part of the sessions will introduce key concepts while practical part will focus on problem solving. Exercises will be set and solved by tutor first and after some practice students will be provided with independent work exercises.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	
Seminar	Scheduled	48
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152

Total student learning and teaching hours		200
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*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by a set of courseworks and one in-class test. The courseworks will involve two practical courseworks 40% each; in-class test will be practical assignment conducted in PC lab. Additionally, to provide feedback to students and help them to prepare for the In-class test, a formative assessment in a form of an SQL mock test will be used.

The coursework rationale is to develop professional skills for modelling, development, querying and implementation of web interfaces to database systems:

- Individual Coursework 1 assesses the student's ability to understand fundamentals concepts of relational model and utilize and apply on practice database modelling methods, mapping of conceptual model to relational model. Students will be required to write a report and implement practical database modelling part. Coursework 1 covers LO1, LO2, and LO5.
- SQL mock test (formative assessment) a time constrained closed book test held during the seminar to prepare students for real In-class test. SQL mock test covers LO1, LO2, and LO5.
- In-class test 1 assesses the student's ability to query relational data. Students will be asked to write SQL queries of various complexity against a database. The structure of the database will be shared with students prior to the exam. Students are asked to write relevant SQL DML statements that does the job described in the task of the test. In-class test covers LO4, LO6.
- Group Coursework 2 assesses the student's practical ability to utilize programming technologies for database access, report and formulate data according to requirements, optimize queries to achieve maximum performance, analyze issues related to data integration, as well as ability to work in a team. Students will be required to write a report and implement practical database development part Coursework 2 covers LO3, LO4, LO6, and LO7.

The coursework's are designed to reflect the real life process of development of efficient and robust database systems.

Assessment criteria

In order to pass the module, students should demonstrate competence in theoretical aspects of database systems development and basic practical skills in database modelling, querying and reporting relational data, application of web technologies for database access. To achieve higher marks, students must demonstrate a greater degree of expertise and knowledge, and in particular to demonstrate knowledge of enhanced modelling concepts, understanding and ability to apply concepts of normalization and functional dependencies, ability to write reasonably complex queries and optimize them for achieving maximum execution performance, develop reasonably complex user interfaces for database system.

Coursework 1: A solution will be presented in a database system implemented in selected DBMS and a report, through which the student will be expected to explain the process of database system modelling and implementation, explain issues related to normalization, mapping of conceptual model to relational model.

In-class test 1: A solution will be presented as a single file that contains SQL DML statements that are developed against a database that is shared with students in advance. Students are asked to insert data to the database, update certain set of records and write complex queries that uses several tables.

Group Coursework 2: A solution will be presented in a fully functional web application that access object relational database for the purpose of information retrieval and storage, generation of reports and a report through which the students will demonstrate a thorough knowledge of issues related to the solution.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
Individual Coursework 1	40%	30%		Coursework
In-class test	20%	30%		In-class exam
Group Coursework 2	40%	30%		Group Coursework

Synoptic assessment

N/A

Sources

1. Connolly, Begg & Strachan (2015) Database Systems: A Practical Approach to Design, Implementation, and Management. Addison-Wesley
2. Elmars Ramez, Navathe Shamkant (2015) *Fundamentals of Database Systems*. Addison-Wesley
3. Abraham Silberschatz, Henry Korth, S. Sudarshan (2010) *Database Systems Concepts*. McGraw Hill
4. PostgreSQL Tutorial [online] Available at: <http://www.postgresqltutorial.com/>
5. Transact-SQL Reference [online] Available at: <https://docs.microsoft.com/en-us/sql/t-sql/>
6. Redis Documentation [online] Available at: <https://redis.io/documentation>
7. MongoDB Manual [online] Available at: <https://docs.mongodb.com/manual/>
8. Entity Framework Reference [online] Available at: <https://docs.microsoft.com/en-us/ef/>

Full module title: Information Systems Management		
Module code: 5BUIS011C	Credit level: 5	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Dr Abdumalik Djumanov		
Extension:	Email: adjumanov@wiut.uz	
Host course and course leader: BSc (Hons) in Business Information Systems, Shirin Primkulova		
Status: Core		
Subject Board: BSc (Hons) in Business Information Systems		
Pre-requisites:	Co-requisites: None	
Study abroad:		
Special features: None		
Access restrictions: None		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module will provide learning experience in information systems management profession to grasp the knowledge and skills in organisation and maintenance of IS services in contemporary business organisations.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Identify and describe different types of information systems enabling business operations;
2. Identify and evaluate opportunities provided by various IT solutions to businesses;
3. Structure, plan and evaluate the implementation of IS services and IS support to business enterprises;
4. Apply the basic knowledge of financial accounting, planning and analysis to the management of information systems,
5. Identify and apply fundamental human resource issues for managing various aspects of IS services and businesses.
6. Identify the societal, legal and information security issues of IS ecosystem.

Course outcomes the module contributes to:

- L5.1. Structure and plan the implementation of IT services and IT support to business enterprises;
- L5.2. Analyse the application of information systems and their impact on the business operations and on an organization as a whole.

Indicative syllabus content

- Information Systems ecosystem and its role in businesses

- Contemporary ICT solutions, ICT development trends and impact of technological innovations on businesses and markets
- IS management framework
- Data and Information management
- IT management: planning of IT and IT operations management
- Human resource planning for IS operations
- IS services costing, financial planning and analysis of IS operations
- Business models for provision of IS services
- Information security and IS risk management
- Ethics and legal issues in Information Systems management

Teaching and learning methods

The contact time of the module comprises of lectures and seminar classes. The emphasis is on students' in-class and independent learning activity: guided reading and individual research, using a range of module textbooks, commentary, IT vendor product information and additional professional sources as well as social networks for group learning. Invitation of guest speakers and site visits that can give some practical professional exposure to the management of IS services in real life companies and enterprises.

In seminars students will discuss real case studies and do practical exercises to strengthen the knowledge of IS profession obtained in lecture classes.

Student presentations and group discussions on case studies with given tasks in tutorials will reinforce course material.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	22
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	2
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The students will do an integrated portfolio assignment. The module will practice formative and summative assessments.

Formative assessments will take place in seminar classes where tutor concludes practical exercises and links them with students' coursework assignments, and provides regular feedback on student performance in portfolio assessments. Students will receive feedback to formative assessments orally during classes and/or online via social networks.

The portfolio will require students to make group research and write one group report with oral presentation and two written individual reports on an information system in a real local business case or a case developed within other modules. The portfolio assignment will assess students' knowledge and skills in critical analysis IT and IS components, evaluation the organisation of IS management, maintenance cost and risk/security issues of IS operations within a business case. The portfolio will also include analysis of ethical and legal considerations of IS operations. Submitting each subcomponent students will receive appropriate feedback that will serve as a guidance for their further research within the portfolio assessment. The oral presentation and written subcomponents of the portfolio will foster the students' transferable skills in communicating their ideas/findings to convince stakeholders of the efficiency of a proposed IS service business models and investments. The portfolio covers LO1-LO6.

Assessment criteria

Portfolio assessment – 100%

The portfolio assessment will consist of coursework subcomponents – group work report with group presentation and two individual coursework reports. The group work subcomponent of the portfolio assessment will require students to make a group research on a specific information system making their visit to a real business site or cases that developed within other modules. Doing group work students will have to demonstrate their knowledge and ability to recognise the role of IS services in business operations and critically analyse of IT infrastructure/architecture, Submitting a group report, students have to make an oral presentation on site-research outcomes.

The second individual coursework subcomponent will require students to develop ISM plan evaluating and suggesting improvements in organisational IS service operations and their funding scheme.

Doing the third individual coursework subcomponent, students will focus on information system's risk management, and ethical and legal consideration as well as information security issues.

The portfolio will assess students' oral communication skills, problem solving, research and analytical abilities relevant to the information systems management profession, in particular resource planning for adequate IS services and evaluation of financial performance of the given IT service/business including written communication skills demonstrated through development of ISM portfolio.

The module team will organise regular in-class and on-line discussions in order to provide comprehensive guidance in independent research and learning. Students will receive appropriate feedback after the submission of each section of the portfolio.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation,
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				open exam or closed exam)
Portfolio Coursework consisting of:	100%	30%		Portfolio
<i>Group report with oral presentation</i>	30%			<i>Written group report and oral presentation</i>
<i>Individual report 1</i>	40%			<i>Individual written report</i>
<i>Individual report 2</i>	30%			<i>Individual written report</i>

Synoptic assessment

N/A

Sources

1. D. Boddy, A. Boonstra, and G. Kennedy. Managing Information Systems: Strategy and Organisation, (Third edition). Prentice Hall, 2009. ISBN 0273686356
2. P.Larke, R.Drake, Information Systems Management in the Big Data Era, Springer, 2014.
3. F.Castillo, Managing Information Technology, Springer, 2016
4. B McNurlin, R.Sprague, T. Bui, Information Systems Management, 8th edition,
5. K Pearlson, C Saunders, Managing and Using Information Systems, 4th edition, Wiley
6. O'Brien, James A., & Marakas, George M. (2008). Management Information Systems, 8th Edition. New York: McGraw-Hill.
7. J.Xu, M.Quddus, Nabaging Information Systems: Ten Essential Topics, Atlantis Press, 2013
8. J. Bryson, Managing Information Systems: A sustainable Approach, 3rd edition, Ashgate, 2013
9. S.Bordoloi, J.Fitzsimmons, M.Fitzsimmons, Service Management: Operations, Strategy, Information Technology, Ninth edition, McGraw-Hill, 2019
10. A.Tylor and et al, Information Security Management Principles, Second edition, BCS – The Chartered Institute for IT, 2017
11. Turban, E, McLean, E, & Wetherbe, J (2002), Information Technology for Management – Transforming the Business in the Digital Economy (3rd Ed.), John Wiley & Sons, ISBN: 0471215333
12. R. M. Stair and G. Reynolds, Principles of Information Systems: A Managerial Approach, Delmar Learning, 2007, ISBN 1423901193
13. Atkinson, Banker, Kaplan & Young (2000) *Management Accounting* (3rd Edition) Prentice Hall Pearson Education
14. Laudon, K C & Laudon, J P (2004) Management Information Systems – Managing the Digital Firm (8th Ed.), Pearson Education ISBN: 0131206818

MODULE PROFORMA		
Full module title: Mobile Applications Development		
Module code: 5BUIS012C	Credit level: 5	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Said Abduvaliev		
Extension: 616	Email: sabduvaliev@wiut.uz	
Host course and course leader: BSc (Hons) in Business Information Systems		
Status: Option		
Subject Board: BSc (Hons) in Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: This module introduces programming for a new context, i.e. mobile devices. The students will learn about challenges of the new realm, such as variety of display sizes, resolution, device features, form factors, dealing with unreliability of the resources and other restrictions. The key concepts that will be introduced are system architecture, mobile application user interfaces, networking, persistent storage and multi-threading. Device profiling, application deployment and installation.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Illustrate a conceptual understanding of mobile application development and use mobile application programming tools and development environments to implement a mobile application based on a requirements document;
2. Explain in detail how to provide portability over a wide range of devices;
3. Produce working android application;
4. Test and validate the functionality of a mobile application.

Course outcomes the module contributes to:

- L5.4. Identify and apply the principles, methodologies, criteria and tools that can be employed in the analysis, specification, development, evaluation, and management of information systems Information and Data Modelling.
- L5.5. Conduct critical analysis of a business problem/situation, formulate criteria to identify and employ an appropriate strategy to solve it.
- L5.6. Develop middle-size solutions for business needs (desktop/web/mobile).

Indicative syllabus content

- Introduction to Android: Android Architecture and the Android operating system;
- Kernel, Libraries, Application Framework; Revision of version history and OS development
- The Android development lifecycle: Definition for each of 5 major portions of the process (Inception, Design, Development, Stabilization, Deployment)
- GUI (Graphical User Interface): Development of the user interface; Concepts and practices used for development of the GUI; Application of usability principles to GUI.
- Data access: Ways of storing data; Working with Databases; SQLite.
- Processes and Threads: Process Lifecycle; Worker threads; Async tasks; Threadsafe methods.
- Networking: Connecting to the network; Managing networks usages; Parsing XML data.
- Location-Based Services: Introduction to Android location framework; Basic location API usage.

Teaching and learning methods

Module will be delivered through series of lectures and PC lab tutorials. Theoretical part of the sessions will introduce key concepts while practical part will focus on problem solving. Exercises will be set and solved by tutor first and after some practice students will be provided with independent work exercises. Practical workshops will be, among other things, dedicated to presentations of projects conceived and developed by students.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	24
Seminar	Scheduled	
Tutorial	Scheduled	24
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means of portfolio consisting of the report and the application. Report will enable students to use their understanding of Android architecture and development lifecycle, applicability of business logic and prototyping. Moreover, report will be used to provide feedback to the students.

The application will enable students to apply practical knowledge of android application development. The entry also includes presentation with explanation of the source code, in order to ensure that there was no act of plagiarism and/or close collaboration.

Assessment criteria

Portfolio 100% requires student to go through the main steps of the android application development. The assessment has two entries: report and application.

Within the report, students should provide a paper describing the key concepts of the proposed application. Students should describe the key aspects of development process and describe the applicability of business logic. [LO 1, 2, 4].

The students will be provided with feedback and will be allowed to make improvements of the case selected. The reflection on the first assignment and changes made will be also included in the second entry of the portfolio.

Second entry enhance student to develop and submit working application [LO 3, 4, 5]. Moreover, the entry also includes presentation and explanation of the source code, in order to ensure that there was no act of plagiarism and/or close collaboration.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
Portfolio	100%	30%		Coursework

Synoptic assessment

N/A

Sources

1. Android Developers. (2019). *Developer Guides*. [online] Available at: <https://developer.android.com/guide/>
2. Android Developers. (2019). *API reference*. [online] Available at: <https://developer.android.com/guide/>

Online sources

1. Google & Udacity (2019). Android Basics: User Interface. [online] Available at: <https://www.udacity.com/course/android-basics-user-interface--ud834>
2. Google & Udacity (2019). Android Basics: User Input. [online] Available at: <https://www.udacity.com/course/android-basics-user-input--ud836>
3. Google & Udacity (2019). Android Basics: Multiple App Screens. [online] Available at: <https://www.udacity.com/course/android-basics-multiscreen-apps--ud839>
4. Google & Udacity (2019). Android Basics: Networking. [online] Available at: <https://www.udacity.com/course/android-basics-networking--ud843>
5. Google & Udacity (2019). Android Basics: Data Storage. [online] Available at: <https://www.udacity.com/course/android-basics-data-storage--ud845>
6. Vanderbilt University (2018). Java for Android. [online] Available at: <https://www.coursera.org/learn/java-for-android>

MODULE PROFORMA		
Full module title: Network Operations		
Module code: 5BUIS013C	Credit level: 5	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Vasiliy Kuznetsov		
Extension: 643	Email: vkuznetsov@wiut.uz	
Host course and course leader: BSc Business Information Systems, Shirin Primkulova		
Status: Option		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: Study of LAN topologies; Network Components; The architecture of LANs and WANs. Study of the OSI model and application of standards and protocols; An introduction to communication principles and techniques.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Determine the nature, application and basic operational principles of typical local area networks in the private sector and, where applicable, in the public sector;
2. Identify proper main network devices and their characteristics, state the criteria for their selection, and evaluate which to use in a given situation;
3. Identify the key network standards related to the design, implementation and management of local and wide area networks;
4. Develop an appropriate network design for a basic distributed information systems environment (with regard to the media used), and justify its suitability;
5. Analyse the protocols related to different layers in the Internet and OSI model, describe their function and place them in the context of an enterprise network;
6. Develop a client-server application working over an appropriate protocol

Course outcomes the module contributes to:

- L5.1. Structure and plan the implementation of IT services and IT support to business enterprises
- L5.5. Conduct critical analysis of a business problem/situation, formulate criteria to identify and employ an appropriate strategy to solve it

Indicative syllabus content

- Networking Media - Copper, Optical and Wireless media
- OSI Model - 7 layer model
- LAN Topologies - Bus, ring, star
- LAN Equipment - Bridges, routers, switches
- LAN Architectures - Ethernet, Token Ring, emerging high speed architectures (e.g. fast Ethernet)
- Network and Transport Protocols - The operation of the network and transport layer in a TCP/IP network, including the differences between TCP and UDP as transport layer protocols, the family of network layer protocols.
- Integrated Network Management - Configuration, fault, security, performance and accounting management; centralised, distributed and hierarchical approaches; management protocols, management information base (MIB); schema for the representation of MIB objects

Teaching and learning methods

The module will be delivered by means of lectures and practical tutorials. Lectures are used to outline the main concepts to be explored in the module and to impart to the student the information required for the achievement of the learning outcomes. It is anticipated the lecture content will be supplemented by material covered in the seminars and by additional reading by the students.

The tutorials are designated as workshops covering both theoretical principles and calculations relating to the covered lectures.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	24
Seminar	Scheduled	20
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	4
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means of coursework and final exam.

Coursework is aimed to assess students' ability to identify and analyse the major features of a network system and demonstrate their understanding of major networking concepts. Coursework 1 covers LO1, LO2, LO4 and LO6.

Final Exam will provide comprehensive assessment of students' ability to grasp and explain the module material and apply it to simple problems. Exam covers LO3 and LO5.

Formative assessment: All seminars will begin with a short quiz assessing the content of the preceding lecture aimed to ensure proper understanding of the material covered. Moreover, several seminars would contain links to online multiple-choice tests on the topics covered.

Assessment criteria

Coursework - This will be an individual assignment. The students will be given a case study and will have to suggest appropriate network layout and equipment for a company. Moreover, students will be requested to develop an application employing custom network protocol to enable data exchange between the branches/departments of the company. In order to excel in the component, the students would have to suggest and justify most optimal network layout and equipment suitable for the given conditions and restrictions as well as produce properly working application. The component covers LO1, LO2, LO4 and LO6.

Exam – This will be a time constrained closed book exam. Students will be required to demonstrate comprehension and knowledge of operational principles of networks covered throughout the module. In order to excel in the component, the students would have to correctly answer all given questions with appropriate level of details and provide relevant examples. The component covers LO3, and LO5.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Coursework 1	60%	30%		<i>Coursework</i>
Exam	40%	30%		<i>Closed book, time-constrained examination</i>

Synoptic assessment

N/A

Sources

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3. Ross K., Kurose J. (2017) Computer Networking: A Top-Down Approach, 6th ed. Pearson.
4. <https://learncisco.net>
5. <https://learningspace.cisco.com>
6. <https://study-ccna.com>
7. <https://dotnet.microsoft.com/learn/>
8. <https://stackoverflow.com>

MODULE PROFORMA		
Full module title: Game Development		
Module code: 5BUIS015C	Credit level: 5	Length: Semester long
UK credit value: 20	ECTS value: 10 credits	
College and School: WIUT		
Module Leader(s): Mikhail Shpirko		
Extension: 643	Email: mshpirko@wiut.uz	
Host course and course leader: BSc (Hons) in Business Information Systems		
Status: Option		
Subject Board: BSc (Hons) in Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module introduces the basics in game development: practicing the key concepts of game development, applicability of promotion techniques and revenue models for the game as a software.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Produce a business proposal of a game.
2. Identify the principles and trends in game design and apply them to the development process.
3. Incrementally produce a working game prototype.
4. Plan the development of the game and evaluate the progress on completion.

Course outcomes the module contributes to:

- L5.5. Conduct critical analysis of a business problem/situation, formulate criteria to identify and employ an appropriate strategy to solve it
- L5.6. Identify, analyse and specify user requirements to develop or to select an appropriate information system solution
- L5.7. Develop middle-size solutions for business needs

Indicative syllabus content

- **Game types:** clarification and differences of the game genres; popularity of the game genres
- **Game Design:** building the storyline; designing the characters; building UML class diagrams;
- **Basic Physics in the Game:** applying the real-life physics to the game; making the game more realistic

- **Visual Design:** Purpose of the designing; Visual Design of the levels, characters, objects; Animation of the objects; Applying Sound Effects;
- **Usability principles in the game:** Navigation principles, menus; Developing game for various screen resolutions;
- **Business perspective:** Monetization and promotion of the game; Revenue models; User-selling points

Teaching and learning methods

The module will consist of weekly sessions of a mix lecture and tutorials. Within teaching weeks Supervised time in studio/workshop will be organised in order to involve students in additional activities to strengthen their independent learning and problem solving and group working skills. Practical workshops will be dedicated to experience business aspects of game development. Theoretical part of the sessions will introduce key concepts while practical part will focus on problem solving. Exercises will be set and solved by tutor first and after some practice students will be provided with independent work exercises.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	6
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	6
Supervised time in studio/workshop	Scheduled	12
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means portfolio consisting of the report and game prototype. The report forms the business proposal of the game by discussing the game design, monetization and promotion of the game. The game prototype will enable students to apply concepts and ideas discussed in report in the actual development of game prototype. Portfolio is granulated into six entries that are to be submitted within the semester as formative assessments. Each entry represents part of game prototype (i.e. menu, sound effects, score management, etc.) or section in the report (monetization, promotion strategies, game design, etc.). The assessment covers all learning outcomes.

Assessment criteria

To achieve the pass mark, student should be able to:

- Produce business proposal with well-defined user-selling points, monetization and promotion strategy for the game

- Identify a single practice that is trendy in game development industry and implement them in the game prototype
- Submit 40% of the entries on time and submit game prototype that might have several limitations at the end of the semester
- Produce a coherent development plan and evaluate completion of the game prototype according to the proposed plan

To achieve the excellent mark, student should be able to:

- Produce business proposal with strongly justified user-selling points, monetization and promotion strategy for the game
- Identify multiple practices that are trendy in game development industry and implement them in the game prototype
- Submit all of the entries on time and submit fully functional game prototype at the end of the semester
- Produce realistic and detailed development plan and explicitly evaluate completion of the game prototype according to the proposed plan

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Portfolio	100%	30%		<i>Report and game prototype</i>

Synoptic assessment

N/A

Sources

1. Chandler ,H. M. (2014) The Game Production Handbook 3rd edition, Jones & Bartlett Learning, ISBN: 978-1-4496-8809-7
2. Rabin, S., (2010). Introduction to Game Development. 2 edition. Course Technology, a part of Cengage Learning
3. Fullerton, T. (2014). Game design workshop: a playcentric approach to creating innovative games. AK Peters/CRC Press.
4. El-Nasr, M. S., Drachen, A., & Canossa, A. (2016). Game analytics. Springer London Limited.
5. Kelly, C (2012) Programming 2D Games, CRC Press, ISBN: 978-1-4665-0868-2
6. Kremers, R (2009) Level Design, Concept, Theory & Practice: A K Peters Ltd, ISBN:978-1-56881-338-7

Online Sources

1. Unity Manual <https://docs.unity3d.com/Manual/index.html>
2. Scripting API <https://docs.unity3d.com/ScriptReference/>
3. C# Guide <https://docs.microsoft.com/en-us/dotnet/csharp/tutorials/intro-to-csharp/>

MODULE PROFORMA		
Full module title: Business Intelligence Systems		
Module code: 5COSC016C	Credit level: 5	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Nodira Nazyrova		
Extension: 643	Email: nnazyrova@wiut.uz	
Host course and course leader: BSc Business Information Systems, Shirin Primkulova		
Status: Option		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: This module teaches students how to build Data Warehouses by understanding their structures and the concept of multi-dimensional modelling. The focus is on Data Warehouse design, multi-dimensional modelling, the integration of multi-source data and analysis, cloud-based data warehousing, NOSQL OLAP, aiming to support better business decision making.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Design and implement a data warehouse with the aid of dimensional schemas; critically evaluate and analyse different data warehousing approaches and their relevant benefits to business intelligence, data mining and analytics;
2. Explain the foundations, definitions, and capabilities of DSS, data analytics and BI.
3. Analyze data in a data warehouse, using OLAP tools;
4. Demonstrate the impact of business reporting, information visualization, and dashboards.

Course outcomes the module contributes to:

- L5.2. Analyse the application of information systems and their impact on the business operations and on an organization as a whole.
- L5.4. Identify and apply the principles, methodologies, criteria and tools that can be employed in the analysis, specification, development, evaluation, and management of information systems Information and Data Modelling.

Indicative syllabus content

- Data warehousing requirements and design methodologies
- Data warehouse conceptual and logical design;

- Data warehouse architectures: star schemas, snowflake schemas, fact tables, dimensions, dimension hierarchies;
- Data warehouse physical design: partitioning, parallelism, compression, indexes, materialized views;
- Data warehouse constructions: ETL, warehouse metadata
- Data warehouse architecture trends: big data, graphs.
- Dashboards and Data Visualization.
- OLAP architectures, OLAP operations, SQL extensions for OLAP;
- OLAP versus Data Mining, Online Analytical Mining (OLAM)
- Introduction to NoSQL Databases
- Graph Databases

Teaching and learning methods

Lectures, seminars/tutorials, formative tests and quizzes, interactive discussions and simulations. Lectures will introduce key concepts while tutorials and workshops will have a very practical focus, based on problem solving.

For the independent studies students will be provided with additional academic support in the form of out-of-class-teaching activities that help to integrate, reinforce and induce better understanding and deeper learning of students.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	
Tutorial	Scheduled	24
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	12
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by 2 courseworks. The coursework 1 will be a practical component assessing the student's ability to design and build Data Warehouse and coursework 2 will be a practical component assessing the ability to analyze data using OLAP tools, business reporting and dashboarding. Coursework 1 covers LO1 and LO2. Coursework 2 covers LO3 and LO4.

Assessment criteria

The Coursework 1 will assess the student's ability to satisfy learning outcomes 1 and 2 by developing a conceptual Data Warehouse schema, critically analyzing the different approaches of Data Warehouse architecture and building a Data Warehouse. The Coursework 2 will assess the student's ability to analyze data using OLAP tools, implement business reporting and dashboarding.

Coursework 2 will cover learning outcomes 3 and 4. To pass the module student should be able to demonstrate the basic understanding of data warehousing and be able to construct a simple data warehouse with reports for decision-making. To get higher marks more sophisticated queries and reports are expected for the coursework. Student should demonstrate an excellent data warehouse solution that would contribute to business' data analysis and better decision making.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Coursework 1	50%	30%		<i>Coursework</i>
Coursework 2	50%	30%		<i>Coursework</i>

Synoptic assessment

N/A

Sources

1. Kimball, R., & Ross, M. (2013). The data warehouse toolkit: The definitive guide to dimensional modeling. John Wiley & Sons.
2. Han, J., Kamber, M., & Pei, J. (2011). Data mining: concepts and techniques. Morgan Kaufmann.
3. Golfarelli M., Rizzi S. (2009): Data Warehouse Design: Modern Principles and Methodologies, McGraw Hill, ISBN 978-0-07-161039-1.
4. Tan P-N., Steinbach M. and Kumar V. (2006): Introduction to Data Mining, Addison Wesley.

Online Reading

1. <https://www.kimballgroup.com/category/data-architecture/>
2. <https://www.sciencedirect.com/topics/computer-science/data-warehouses>

MODULE PROFORMA		
Full module title: Web Applications Development		
Module code: 5COSC017C	Credit level: 5	Length: Semester long
UK credit value: 20	ECTS value: 10 credits	
College and School: WIUT		
Module Leader(s): Mikhail Shpirko		
Extension: 643	Email: mshpirko@wiut.uz	
Host course and course leader: BSc (Hons) in Business Information Systems		
Status: Option		
Subject Board: BSc (Hons) in Business Information Systems		
Pre-requisites: none.	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module introduce the basics in web applications development: understanding key concepts of web applications development, applicability of architectural principles and design patters for the web applications		

Learning outcomes

By the end of the module the successful student will be able to:

1. Apply the architectural principles to the development of web applications.
2. Apply version control, software design patterns and apply modern concepts to the development of web applications.
3. Incrementally develop a working web application.
4. Plan the development of the application and evaluate the progress on completion.

Course outcomes the module contributes to:

- L5.1. Structure and plan the implementation of IT services and IT support to business enterprises.
- L5.6. Identify, analyse and specify user requirements to develop or to select an appropriate information system solution.
- L5.7. Develop middle-size solutions for business needs.

Indicative syllabus content

- **Introduction to web applications:** analysing the need and purpose of the web applications from business perspective
- Basics of web applications architecture
- Software design patterns in web applications
- Modern concepts in web applications

- Version control tools

Teaching and learning methods

The module aims to provide high amount of practical content. The seminars are targeted to explore and practice the web development by students. This will involve students in activities to strengthen their both independent learning and group working skills. Within teaching weeks Supervised time in studio/workshop will be organized in order to involve students in additional activities to strengthen their independent learning and problem solving.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	24
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means portfolio which allows to step-by-step develop web application. The assessment will require to produce a web application for the specific case study selected by student. The web application should follow architecture principles, stored in version control system and have a modern technique embed in it. Portfolio is granulated into six entries that are to be submitted within the semester as formative assessments. Each entry will represent the module of application to be developed (i.e. items catalogue, CRUD (create, retrieve, update, delete), implementation of software design pattern, etc), plan for completion or reflection on the completed work. The assessment covers all learning outcomes.

Assessment criteria

To achieve the pass mark, student should be able to:

- Produce a code according to the DRY (Don't Repeat Yourself) and SRP (Single Responsibility Principle) principles
- Apply a single software design pattern in the web application
- Submit 40% of the entries on time and submit web application that might have several limitations at the end of the semester
- Produce a coherent development plan and evaluate completion of the web application according to the proposed plan

To achieve the excellent mark, student should be able to:

- Produce a code according to the DRY (Don't Repeat Yourself) and SRP (Single Responsibility Principle) principles with clear architecture and separation of layers
- Apply several design patterns in the web application; use version control for code repository; create SPA

- Submit all entries on time and submit fully functional web application at the end of the semester
- Produce realistic and detailed development plan and explicitly evaluate completion of the web application according to the proposed plan

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Portfolio	100%	30%		<i>Web application and report</i>

Synoptic assessment

N/A

Sources

1. Block, G., Cibraro, P., Felix, P., Dierking, H., & Miller, D. (2014). Designing Evolvable Web APIs with ASP. NET: Harnessing the Power of the Web. " O'Reilly Media, Inc."
2. Freeman, A. (2014). Pro AngularJS. Apress.
3. Kurtz, J., & Wortman, B. (2014). ASP. NET Web API 2: Building a REST Service from Start to Finish. Apress.
4. Palermo, J., Bogard, J., Hexter, E., Hinze, M., & Skinner, J. (2012). ASP. NET MVC 4 in Action. Manning Publications Co..
5. Darwin, P. B., & Kozlowski, P. (2013). AngularJS web application development. Packt Publ.

Online Sources

1. C# Guide <https://docs.microsoft.com/en-us/dotnet/csharp/tutorials/intro-to-csharp/>
2. ASP.NET Documentation <https://docs.microsoft.com/en-us/aspnet/#pivot=aspnet>
3. AngularJS API Docs <https://docs.angularjs.org/api>
4. ReactJS API Docs <https://en.reactjs.org/docs/getting-started.html>
5. KnockoutJS API Docs <https://knockoutjs.com/documentation/introduction.html>

MODULE PROFORMA		
Full module title: Business Information Systems Project		
Module code: 6BUIS007C	Credit level: 6	Length: Year long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Shodiyabegim Bakhtiyorzoda		
Extension: 616, 617	Email: s.bakhtiyorzoda@wiut.uz	
Host course and course leader: BSc (Hons) in Business Information Systems, Shirin Primkulova		
Status: Core		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: n/a		
Special features: none		
Access restrictions: none		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The project module requires students to carry out their own piece of independent research under the guidance of a supervisor. The research/development topic chosen must be appropriate within the Business Information Systems area. A detailed project guide is provided which contains comprehensive guidance to the project process.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Carry out a comprehensive literature review of issues related to a selected area of Business Computing and critically evaluate their findings.
2. Prepare a timetabled research plan and manage their time effectively so that they are able to follow this plan
3. Articulate competency in aspects of: business needs analysis, business systems design, and implement/review some aspects of the system.
4. Critically evaluate the work undertaken and analysis of their findings in a suitable manner and complimenting appropriate conclusions
5. Produce a well-structured and coherent report of an extended piece of work and be able to defend this at a viva voce examination
6. Justify the methods and processes used in carrying out the project
7. Demonstrate creative thinking in approaching novel problems

Course outcomes the module contributes to:

- L6.1. Evaluate the organisational and managerial implications of IS/IT considering factors of business environment
- L6.2. Focus and analyse on the need for integrated business and information systems strategy development and planning at all levels
- L6.5. Carry out a comprehensive literature review of issues related to a selected area of Business Information Systems and critically evaluate the findings
- L6.6. Analyse current trends in technology and suggest most appropriate resources/tools for given business problem
- L6.7. Specify, design, develop and test complex information systems to address business problems with respect to privacy, usability, stability and maintainability

Indicative syllabus content

- Project initiation – development of project plan, scope, defining objectives
- IT project management specifics
- Literature review and research essentials for information systems projects
- Systems development essentials, modelling requirements
- IT strategy and system/design architecture
- Industry and competitor analysis
- Interface design, usability, product quality and testing
- Written presentation of research and results analysis

Teaching and learning methods

This is a self-guided research module with individual supervision the project is an individually supervised piece of work. Students will be expected to seek guidance at least fortnightly from their supervisor throughout the project.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	
Tutorial	Scheduled	
Project supervisor	Scheduled	48
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		60
Placement	Placement	
Independent study	Independent	140
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The primary assessment tool is the final project report and the accompanying viva voce. These provide a means for assessing the quality of the research per se, as well as the students' critical understanding of their work and their ability to communicate this effectively. The initial proposal and progress report assess students' ability to formulate and follow a timetabled research plan and to be able to effectively communicate this. Portfolio covers LO1 – LO7.

Assessment criteria

Assessments will be judged on the following criteria

- ability to independently carry out a relevant review of literature
- integration of findings from literature review into planning and interpretation of research
- ability to incorporate innovation within a realistic and scientific research plan
- scope, depth and complexity of the work
- development of new and existing skills
- ability to work independently while making effective use of supervisor's guidance
- ability to formulate a logical, critical and effective written report of the research and to defend this orally
- demonstration of critical insight into their research findings

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Portfolio	100%	30%		<i>Dissertation, supported by compulsory viva voce examination</i>

Synoptic assessment

N/A

Sources

1. Barrass, R. Scientists must write: a guide to better writing for scientists, engineers and students. Chapman & Hall (2002)
2. Dawson, C.W. (2000) The Essence of Computing Projects: A Student's Guide. Prentice Hall.
3. University Gerald J Alred (2015) Handbook of Technical Writing. 11th edition. Bedford/Saint Martin's
4. Weaver, Philip (2004) Success in your project: a guide to student system development projects, Harlow: Pearson (QA76)
5. David L. Olson (2014) Information Systems Project Management. Business Expert Press

MODULE PROFORMA		
Full module title: Developing Digital Enterprise		
Module code: 6COSC013C	Credit level: 6	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Abdumalik Djumanov		
Extension:	Email: adjumanov@wiut.uz	
Host course and course leader: BSc in Business Information Systems. Shirin Primkulova		
Status: Core		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: This module will support major developments and issues in entrepreneurship and enterprise, underpinned and supported by information communication technologies. It will also encourage a business mind-set in creative thinking in seeking opportunities for new ICT-based start-ups and digitalisation and digital transformation of business processes, and provide a critical assessment of their impact.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Apply both creativity and reasoning in identifying new opportunities in a world of increasing user generated content, and information and knowledge transfer;
2. Critically evaluate the importance and business opportunities supported and offered by contemporary IT solutions;
3. Critically evaluate how cloud/utility computing and emerging IT provide new opportunities for modern enterprises;
4. Analyse and design enterprise and e-business solutions based on widely utilised techniques;
5. Analyse sustainable developments in the storage, sharing and retrieval of information across international boundaries and understand the wider issues of authentication, privacy and security;
6. Apply adequate project management skills planning a new project initiative.

Course outcomes the module contributes to:

- L6.1 Evaluate the organisational and managerial implications of IS/IT considering factors of the business environment;
- L6.3 Critically analyse the need for information systems strategy in business and perform planning for development;

L6.4 Identify, apply and evaluate various information systems and information management techniques for business/science related tasks;

L6.6 Critically analyse current trends in technology and suggest most appropriate resources/tools for given business problem;

In order to relate the Module Learning Outcomes to the Course Learning Outcomes and the Graduate Attributes, this module specification should be read in conjunction with the Course Programme Specification.

Indicative syllabus content

- **The digital business mindset:** entrepreneurship thinking; cognitive development; search space and creativity in identifying opportunities within IT.
- **Digitalisation and digital transformation of business:** innovation and processes; change management; development and growth;
- **Enterprise IT systems in middle sized and large enterprises:** Enterprise Resource Planning (ERP) systems, Supply Chain Management (SCM) and Customer Relationship Management (CRM) systems;
- **Internet-based technologies and digital business models:** e-commerce, e-business and e-enterprise; extending ERP systems towards e-business / e-enterprise; e-business and e-enterprise business models;
- **New paradigms in enterprise IT architectures:** cloud computing and cloud-based enterprise systems; changing enterprise data centers to cloud-based systems;
- **Opportunities for small businesses provided by the Cloud computing:** cloud based business models for smaller businesses; entrepreneurship in the cloud;
- **Emerging IT technologies as digital entrepreneurship and new enterprise platforms:** IoT and IoE; edge computing; distributed computing, Blockchain; business analytics, machine learning and AI;
- **Global presence and persistence:** user generated content, global visibility and communication; technology driven organizational cultures; authentication, privacy and security;
- **Sustainable development of digital business:** Green ICT; Social entrepreneurship – non-profit entrepreneurship; Legal, ethical and social impact of the digital business;
- **Contemporary project management techniques in IT/IS development:** Agile project management; IT/IS development approaches and their application.

Teaching and learning methods

The module will be taught by a combination of lectures, seminars and workshop sessions.

In the lectures students will be introduced to underlying concepts, theories, tools and models that will provide the foundation for the activities in seminars workshops, and the students independent research and learning, where guidance will be provided as appropriate for level 6.

To encourage and develop autonomous learning, the module places a greater emphasis on independent research and learning thus the students are expected to spend a substantial amount of time researching, reading and evaluating recommended resources.

The seminar sessions will be central to the student learning, as they will provide the opportunity to interact by discussing topics further, apply theories and skills to their specific project proposals, and exploring answers to their own questions.

In addition, the workshop sessions will simulate 'an investor – start-uper' session to offer the students the opportunity to present their work in a mode of 'elevator-shift' to win 'an investor's attention' and get feedback on work undertaken in class or independently from their peers and tutors which will help develop their learning.

The module material will be made available electronically, via the WIUT's learning management system.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	24
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The coursework will require students to undertake individual independent research but work in a team on a related problem that will require them to conduct a critical analysis and present their findings in their own IS development proposal for an existing and/or new business entity. IS development proposal may consist of specific and structured plan to digitise a business process, introduce business transformation with basic business process reengineering and/or develop a new e-business application with prior research of market needs.

In coursework 1, students will have to develop an initial proposal on IS development supported with adequate market and business process research. At this stage, students present their research outcomes in the form of individual 'elevator-shift' presentation and project initiation report.

Doing coursework 2, students will develop the business, data management and IT/IS models, evaluate socio-economic considerations and design a brief project management plan for their project initiative in the form of a written report.

Assessment criteria

To pass, the student will need to:

- demonstrate an acceptable level of creativity in forming a framework in support of a new venture, digitalisation or digital transformation of business process;
- demonstrate a good level of critical evaluation of related topics and issues in support of a new venture, digitalization of business process;
- demonstrate a well-supported rationale for an organisation to introduce a conceptual proposal for digitalization or digital transformation of an enterprise;
- demonstrate a good understanding of the key concepts embedded in the taught module materials and associated reading materials.

The students will receive higher marks if they are thorough in addressing the task presented to them and if they demonstrate a very good awareness of some of the critical issues relating to the task and situation set and begin to place their answer in a wider social and economic context.

To achieve highest marks, in addition to the above, the student will need to provide a highly comprehensive answer, which contains a high level of critical evaluation and/or appraisal of the issues pertaining to the task and situation set underpinned by current practices and theories in academic publications.

To pass the module students are expected to achieve a mark of at least 40% overall without scoring less than 30% in the assessment component.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
CW 1	50%	30%		<i>Individual presentation and written report</i>
CW 2	50%	30%		<i>Individual written report</i>

Synoptic assessment

N/A

Sources

1. Burns, P., (2014) New Venture Creation, A Framework for Entrepreneurial Start-Ups, Palgrave
2. Macmillan.
3. Chaffey, D., (2014) Digital Business and E-Commerce Management, (6th Edition), Prentice Hall.
4. Kavis, M. J., (2014) Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS), Wiley.
5. Kaplan, J. M., (2007) Patterns of entrepreneurship, (2nd Edition), Wiley.
6. Reuvid J. (2011) Start up and run your own business: the essential guide to planning, funding and growing your new enterprise, (8th Edition), Kogan Page.
7. Bradley S., Digital Business, Chicago Business Press, 2015.
8. McAfee A. and Brynjolfsson E., Machine, Platform, Crowd: Harnessing Our Digital Future, W. W. Norton & Company; 1 edition, 2018
9. Tapscott D. and Tapscott A., Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World, Portfolio; Reprint edition, 2018
10. Weill P. and Woerner S., What's Your Digital Business Model?: Six Questions to Help You Build the Next-Generation Enterprise, Harvard Business Review Press, 2018

MODULE PROFORMA		
Full module title: Software Quality, Performance and Testing		
Module code: 6BUIS010C	Credit level: 6	Length: Semester long
UK credit value: 20 credits	ECTS value: 10 credits	
Faculty and Department: BSc Business Information Systems		
Module Leader(s): Avaz Khalikov		
Extension: 652	Email: akhalikov@wiut.uz	
Host course and course leader: BSc Business Information Systems, Shirin Primkulova		
Status: Optional		
Subject Board: BSc Business Information Systems		
Pre-requisites: None	Co-requisites: None	
Study abroad: n/a		
Special features: None		
Access restrictions: None		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module introduces quality and quality assurance concepts, software quality assurance techniques, developer testing approaches and techniques (control flow and data flow testing, mutation testing and etc.), specification-based testing techniques (equivalence partitioning, boundary value analysis, cause-effect graphing and etc.), management of software quality (test cycles, design and code reviews, test plans, test tools, quality metrics).		

Learning outcomes

By the end of the module the successful student will be able to:

1. Discuss the definition of quality, cost of quality, quality model.
2. Apply white-box testing, black-box testing, and inspection techniques.
3. Learn to apply test tools in the testing life cycle.
4. Employ testing metrics for product and process.
5. Carry out performance testing and usability testing.

Course outcomes the module contributes to:

- L6.6. Critically analyse current trends in technology and suggest most appropriate resources/tools for given business problem
- L6.7. Specify, design, develop and test complex information systems to address business problems with respect to privacy, usability, stability and maintainability

Indicative syllabus content

- Quality and quality assurance concepts;
- Software quality assurance tools and techniques;

- Developer testing approaches and techniques: control flow and data flow testing, mutation testing, symbolic evaluation, domain testing;
- Specification-based testing techniques: equivalence partitioning, boundary value analysis, cause-effect graphing, random testing, state machine testing, formal program verification.
- Management of software quality: test cycle (unit, integration, system, alpha and beta testing phases); design and code reviews, test plans, test tools, quality metrics, quality prediction, in-process quality tracking.

Teaching and learning methods

The module will consist of weekly sessions of a mix lecture and practical tutorials.

Theoretical part of the sessions will introduce key concepts while practical part will focus on practicing tools, applying testing techniques in practice. Tasks will be set and solved by tutor first and after some practice students will be provided with independent work exercises.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	24
Seminar	Scheduled	
Tutorial	Scheduled	24
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will have two assessments: one PC lab test and examination.

The test will be time constrained and will require students to apply knowledge and skills acquired on the module to solve given problems.

The examination will allow evaluating students' comprehension of the theoretical aspects of the module. In-class test covers LO2, LO3, LO4 and LO5. Exam covers LO1, LO4 and LO5.

Assessment criteria

In-class test – this will be a time constrained closed book assignment in the PC laboratory.

Students will perform tests on code samples and provide mini-reports on errors identified.

Exam - this will be a time constrained closed book examination. The exam will assess students' understanding of the major theoretical aspects of the course. As a part of the examination, students will also be provided with a case study and will be required to write recommendation on the organization of the testing process.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
<i>In-class test</i>	50%	30%		<i>In-class test</i>
<i>Exam</i>	50%	30%		<i>Closed exam</i>

Synoptic assessment

N/A

Sources

1. McConnel S.. (2004). Code complete, 2nd Ed., Microsoft Press
2. Jorgensen, P.C., (2013). Software Testing: A Craftsman's Approach, 4th Ed., Auerbach Publications.
3. Myers, G.J., Sandler, C., Badgett, T., (2011). The Art of Software Testing, 3rd Ed., Wiley.
4. McCaffrey, J.D., (2009). Software Testing: Fundamental Principles and Essential Knowledge, BookSurge Publishing.

MODULE PROFORMA		
Full module title: Concurrent Programming		
Module code: 6BUIS011C	Credit level: 6	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Vasiliy Kuznetsov		
Extension: 643	Email: vkuznetsov@wiut.uz	
Host course and course leader: BSc Business Information Systems. Shirin Primkulova		
Status: Option		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: Module covers programming of concurrent, cooperating sequential processes. Studies race conditions, critical sections, mutual exclusion, process synchronization, semaphores, monitors, message passing, the rendezvous, deadlock, and starvation.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Develop multithreaded applications efficiently.
2. Design applications in which threads coordinate in the presence of dependencies.
3. Validate the correctness of concurrent algorithms.
4. Apply concepts of concurrency in practical applications (e.g. SOA, RPC, etc.).

Course outcomes the module contributes to:

- L6.6. Critically analyse current trends in technology and suggest most appropriate resources/tools for given business problem
- L6.7. Specify, design, develop and test complex information systems to address business problems with respect to privacy, usability, stability and maintainability

Indicative syllabus content

- Threads
- Race Conditions
- Volatile Variables
- Shared Memory
- Semaphores
- Monitors

- The Classic Concurrency Problems
- Safety and synchronization
- Memory models
- Patterns for safety: immutable classes, fully synchronized objects, containment
- Equivalence of Semaphores and Monitors
- Concurrent Models in Practice: RPC, SOA etc.

Teaching and learning methods

The module will be taught using practical session and traditional lectures. However the substantial effort of teaching students the concepts of concurrent programming will be delivered in practical tutorials.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	
Tutorialdis	Scheduled	24
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	12
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The coursework rationale is to develop practical skills in development of multithreaded applications and demonstrate efficient use of concurrent programming techniques. The module's assessment strategy involves a practical coursework and an in-class tests that will assess student's ability to understand fundamental concepts of multithreaded programming and ability to apply them in practice.

In-class test assesses the students ability to understand and apply basic concepts of multithreaded programming. Students will be required to implement a practical assignment. In-class test covers LO1 and LO2.

Coursework assesses students ability to apply concurrent algorithms and ability to apply concurrent programming techniques for practical applications SOA, RPC etc. Coursework covers LO1, LO3 and LO4.

Most of the tutorials would contain elements of formative assessment ensuring proper understanding of the material covered during the lectures.

Assessment criteria

In order to achieve a pass mark, students need to demonstrate a clear understanding of the basic concepts discussed in the module.

For students to gain higher than pass mark they need to demonstrate deeper understanding on the concepts discussed in this module and be able to properly apply them in practical applications.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Coursework	60%	30%		<i>Coursework</i>
In-class test	40%	30%		<i>Closed book test</i>

Synoptic assessment

N/A

Sources

1. Ben-Ari, M. (2006). Principles of concurrent and distributed programming. Pearson Education.
2. Cleary S. (2014). Concurrency in C# Cookbook. O'Reilly.
3. Khan O. (2018). C# 7 and .NET Core 2.0 High Performance. Packt Publishing.
4. Nagel C., (2018). Professional C# 7 and .NET Core 2.0, Wrox
5. Ringler R. (2014). C# Multithreaded and Parallel Programming. Packt Publishing.
6. Terrell R. (2018). Concurrency in .NET: Modern patterns of concurrent and parallel programming. Manning Publications.
7. <https://dotnet.microsoft.com/learn/>
8. <https://www.c-sharpcorner.com/>
9. <https://www.codeproject.com>
10. <https://stackoverflow.com>

MODULE PROFORMA		
Full module title: Distributed Systems and Cloud Computing		
Module code: 6BUIS014C	Credit level: 6	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: BSc Business Information Systems		
Module Leader(s): Dilshod Ibragimov		
Extension:	Email: dibragimov@wiut.uz	
Host course and course leader: BSc Business Information Systems, Shirin Primkulova		
Status: Option		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module introduces theoretical and practical concepts of design and implementation of distributed and cloud systems. Module aims to gain a coherent understanding of fundamental aspects of distributed and cloud systems		

Learning outcomes

Having completed this module, the student should be able to:

1. Assess and justify the need for distributed and cloud software systems for a specific case.
2. Explain how distributed applications work; compare and contrast different techniques and frameworks they are built upon.
3. Apply on practice distributed algorithms.
4. Develop, deploy and configure an application in an IaaS platform.

Course outcomes the module contributes to:

- L6.4. Identify, apply and evaluate various information systems and information management techniques for business/science related tasks.
- L6.6. Critically analyse current trends in technology and suggest most appropriate resources/tools for given business problem
- L6.7. Specify, design, develop and test complex information systems to address business problems with respect to privacy, usability, stability and maintainability

Indicative syllabus content

- Characterisation of distributed systems: examples of distributed systems, resource sharing and the Web.
- Cloud architectures SaaS, PaaS, IaaS

- Distributed file systems, HDFS.
- Inter-process communication: the API for Internet protocols, usage of REST web services, external data representation and marshalling. Client server communications and p2p communications.
- Classical Distributed Algorithms. Distributed debugging
- Distributed transactions: concurrency and replication controls in distributed systems, distributed deadlocks, atomic commit protocols 2PC and 3PC.
- Fault-tolerance and high availability. Failure models and failure detectors.
- NoSQL data stores, CAP theorem.
- Batch cloud computing: map-reduce, Pig, Spark.

Teaching and learning methods

The module will be taught by a combination of lectures, workshops and seminars. However, the substantial effort of teaching students the practical concepts of distributed and cloud systems will be delivered in workshops and seminars. During these sessions students will work in smaller groups in the form of supervised workshops or individually. These sessions enable students to develop their practical, technical and analytical skills and to discuss with the tutors their thoughts, ideas and progress within the subject matter.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	12
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The coursework rationale is to develop professional skills for modelling and development of distributed and cloud applications. Coursework 1 assesses the student's ability to understand fundamental concepts of design and development of distributed and cloud systems and apply them on practice. In-class test assesses student's ability to understand and analyse advantages and limitations of distributed and cloud systems and be able to provide recommendations on applicability of distributed and cloud systems as well as to implement a simple solution in practice. Coursework 1 covers, LO1, LO2 and LO4. In-class test covers LO3 and LO4.

To this extent, the course work is meant to assess all learning outcomes in regards with the students' practical knowledge and ability in planning, designing and implementing distributed and cloud systems and associated algorithms in a variety of real-world problems. An in-class test is meant to assess all learning outcomes in regards with the students' theoretical knowledge and critical thinking in distributed and cloud systems as well as the application of distributed algorithms in practice.

Assessment criteria

In order to pass the module, students must demonstrate competence in understanding the major principles of design and implementation of distributed and cloud systems. In particular, they should demonstrate skills in development of basic distributed applications and be able to develop relevant REST web services for implementation of interprocess communications, understand concepts of distributed transactions and be able to apply map-reduce programming model.

To achieve higher marks, students must be able to understand the advantages and limitations of NoSQL data stores and use them appropriately, demonstrate skills in design and development of distributed and cloud systems using containers and other current development methods as well as have a good understanding of fault tolerance and high availability issues, network and application security issues and peer-to-peer systems design and development principles.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Coursework 1	60%	30%		Coursework
In-class test	40%	30%		In-class test

Synoptic assessment

N/A

Sources

1. Coulouris, G. F., Dollimore, J., & Kindberg, T. (2011). Distributed systems: concepts and design. 5th edition, Pearson Education.
2. Fokkink, W. (2013). Distributed Algorithms: An Intuitive Approach. MIT Press.
3. Thomas Erl, Robert Cope, Amin Naserpour (2015). Cloud Computing Design Patterns. Prentice Hall
4. Erl, T., Puttini, R., & Mahmood, Z. (2013). Cloud Computing: Concepts, Technology, & Architecture. Pearson Education.
5. Duggan, D. (2012). Enterprise Software Architecture and Design: Entities, Services, and Resources (Vol. 10). John Wiley & Sons.

MODULE PROFORMA		
Full module title: ERP Design and Implementation		
Module code: 6BUIS015C	Credit level: 6	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: BSc Business Information Systems		
Module Leader(s): Shodiyabegim Bakhtiyorzoda		
Extension: 616, 617	Email: s.bakhtiyorzoda@wiut.uz	
Host course and course leader: BSc Business Information Systems, Shirin Primkulova		
Status: Option		
Subject Board: BSc Business Information Systems		
Pre-requisites: None	Co-requisites: None	
Study abroad: n/a		
Special features: None		
Access restrictions: None		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module introduces concepts of Enterprise Resource Planning Systems (ERP), role that they play in organization. Module provides hands-on experience in managing and developing ERP systems such as SAP, Microsoft Dynamics, Oracle ERP.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Distinguish architecture of ERP systems
2. Extrapolate principles of development of ERP applications for business
3. Implement conceptually ERP systems to support and reflect business processes
4. Interpret concepts of ERP systems and be able to utilise it for practical business tasks

Course outcomes the module contributes to:

- L6.1. Evaluate the organisational and managerial implications of IS/IT considering factors of the business environment
- L6.2. Analyse the need for information systems strategy in business and perform planning for development
- L6.7. Specify, design, develop and test complex information systems to address business problems with respect to privacy, usability, stability and maintainability

Indicative syllabus content

- ERP Fundamentals
- Introduction to ERP systems
- Technical Features and architecture of ERP systems
- ERP systems supporting warehouse management and procurement operations

- ERP systems supporting finance processes
- ERP systems supporting HR processes
- ERP systems supporting production and operations
- Global ERP systems market share and solutions

Teaching and learning methods

The module will be taught by a combination of lectures and tutorials. However, the substantial effort of teaching students the practical concepts of ERP systems will be delivered in tutorials. During these sessions students will work in smaller groups in the form of supervised workshops. These sessions enable students to develop their practical, technical and analytical skills and to discuss with the tutors their thoughts, ideas and progress within the subject matter.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	22
Seminar	Scheduled	
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	20
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	3
External visits	Scheduled	3
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	152
Independent study	Independent	
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The in-course assessment - portfolio will require students to make group research and individual assignment based on case study. In group research students are required to analyse business processes and conceptually design ERP system supporting business processes, explicitly defining main components of it – data, data types, its distribution, sources, users and use of the data. Students are required in groups to come up with conceptual ERP solution which will cover all business processes including operations, warehouse, HR and Finance. Group research covers LO1, LO2, LO3. Individual assignment will cover hands-on experience on ERP system assessing understanding and ability to utilise ERP for business need covering LO1, LO3, LO4.

Assessment criteria

To achieve the pass mark, student should be able to:

- Present analysis of ERP components, architecture, principles and concepts for a given business case
- Produce a coherent report covering major business constraints and rationale
- Demonstrate ERP comprehension by performing practical tasks within the ERP system simulating business case

To achieve the excellent mark, student should be able to:

- Present analysis of ERP components, architecture, principles and concepts for a given business case, strong justified and supported by research and industry review
- Produce a coherent report covering all business constraints and rationale, supported by justification and critical analysis of alternative solutions
- Demonstrate ERP comprehension by performing practical tasks within the ERP system simulating business case completely

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Portfolio	100	30%		<i>Report and practical assignment</i>

Synoptic assessment

N/A

Sources

1. De Bruyn, G. M., Lyfareff, R., Balleza, M., & Kashyap, D. (2014). Introduction to ABAP Programming for SAP. Cengage Learning Trade.
2. Daiberl, J., Fox, S., Adams, S., & Reimer, T. (2009). Microsoft. NET and SAP. Microsoft Press.
3. Schneider, T., Gahm, H., & Westenberger, E. (2014). ABAP Development for SAP HANA. SAP PRESS.

MODULE PROFORMA		
Full module title: Internet of Things		
Module code: 6COSC014C	Credit level: 6	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Shirin Primkulova		
Extension: 652	Email: sprimkulova@wiut.uz	
Host course and course leader: Business Information Systems, Shirin Primkulova		
Status: option		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: The module introduces basics of Internet of Things (IoT) systems, their component parts, connections and communications. Emphasis is placed on practical experience with Electronic kits (sensors and actuators) and suitable programming language to design own IoT system and application.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Explain the use and value of IoT in different industries.
2. Recognise components of an IoT system and their connections and incorporate them into a circuit.
3. Design a simple IoT system made up of sensors, wireless network connection, data analytics and display/actuators.
4. Develop the necessary control software for IoT system.

Course outcomes the module contributes to:

- L6.2. Analyse the need for information systems strategy in business and perform planning for development
- L6.6. Analyse current trends in technology and suggest most appropriate resources/tools for given business problem
- L6.7. Specify, design, develop and test complex information systems to address business problems with respect to privacy, usability, stability and maintainability

Indicative syllabus content

- **Introduction to Internet of Things:** “things”, sensors, actuators, physical design of IOT, logical design of IOT
- **Electricity:** Electrical circuits and electronics, Ohm's law, analog and digital signal, microcontroller, microprocessor, potentiometers.
- **Connecting things:** components of IoT networks, types of connections, protocols, wires, wireless connections, Wi-Fi, Bluetooth, radio
- **Programming of things:** special software for programming required for IoT, handling data IoT generates.

Teaching and learning methods

The module will consist of weekly sessions of a mix lecture and practical classes. History of IoT and other theoretical key concepts will be given during lectures, while practical part will focus on hands on experience with appropriate electronic kits and connecting things and programming. Exercises will be set and solved by lecturer first and after some practice students will be provided with independent work exercises.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	6
Practical Classes and workshops	Scheduled	30
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by one project report and accompanying viva voce with demonstration of created IoT system and control application in the end of semester. In the middle of semester, students will have to demonstrate their skills and understanding of use of sensor and actuators during midterm viva voce. This will have a form of formative assessment and will help students to realize their understanding, progress and effort required. Portfolio covers LO1 - LO4.

Assessment criteria

Project is an individual assignment where students will be required to design and program own IoT system. [1, 2, 3, 4]

In order to achieve a pass mark, students need to demonstrate a clear understanding of the basic concepts taught in the module and their application.

For students to gain higher than pass mark they need to demonstrate deeper understanding on the concepts discussed in this module and be able to properly apply them in practical applications.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
<i>Project</i>	100%	30%		<i>Project</i>

Synoptic assessment

N/A

Sources

1. Vijay Madiseti, Arshdeep Bahga, (2014). "Internet of Things A Hands-On- Approach"
2. Adrian McEwen, (2013). "Designing the Internet of Things", Wiley Publishers
3. Daniel Kellmerein, (2013). "The Silent Intelligence: The Internet of Things".

Link to the online reading list

1. www.arduino.cc
2. www.instructables.com/circuits
3. circuitdigest.com
4. howtomechatronics.com
5. projects.raspberrypi.org

MODULE PROFORMA		
Full module title: Computer Generated Imagery and Its Implementation		
Module code: 6COSC015C	Credit level: 6	Length: Semester long
UK credit value: 20	ECTS value: 10 credits	
College and School: WIUT		
Module Leader(s): Mikhail Shpirko		
Extension:	Email: mshpirko@wiut.uz	
Host course and course leader: BSc (Hons) in Business Information Systems		
Status: Option		
Subject Board: BSc (Hons) in Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: This module introduces students to the methods and processes involved in creating 3D models and environments, and renderings. The key areas of modelling, texturing, lighting and rendering will be studied and various modes of output demonstrated. Different applications of CGI (computer generated imagery), such as motion graphics, character animation and virtual environments are discussed.		

Learning outcomes

Having completed this module, the student should be able to:

1. Evaluate Computer Generated Imagery implementation in different industries.
2. Create environments and objects using 3D imaging software.
3. Apply surface qualities, lighting, textures, and imported graphic files to elements in a three dimensional composition.
4. Interpret various workflows of CGI.
5. Analyse the various applications of 3D design and visualization across multimedia, interior architecture and industrial design practices.

Course outcomes the module contributes to:

- L6.6. Analyse current trends in technology and suggest most appropriate resources/tools for give business problem
- L6.7. Specify, design, develop and test complex information systems to address business problems with respect to privacy, usability, stability and maintainability

Indicative syllabus content

- **Introduction to Computer Generated Imagery**

- **3D modelling:** modelling methodologies, introduction to poly modelling.
- **Texturing:** UV mapping, texturing techniques and tools.
- **Shading:** Introduction to creating materials, material types
- **Lighting and Rendering:** Lighting principles, light types, introduction to rendering, real-time render, ray traced render.
- Implementation of CGI in different industries workflow and pipelines.
- Demo reels and breakdown of real life projects

Teaching and learning methods

The module will consist of weekly sessions of a mix lecture and tutorials. Within teaching weeks Supervised time in studio/workshop will be organized in order to involve students in additional activities to strengthen their independent learning and problem solving and group working skills.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop	Scheduled	12
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means of coursework and in-class test. The coursework is aimed to assess students' ability to analyse the theoretical frame of implementation of CGI, while the in-class test assesses the student's ability to create a 3D asset.

The coursework is aimed to assess students' ability to analyse the case and given task and demonstrate their understanding of implementation of CGI in the project workflow. Student will be provided with the case study whereby students must provide the pipeline of work for the assets development [LO1, LO4, LO5].

The in-class test assesses the student's ability to create a 3D asset. Students will be asked to create a 3D asset using provided reference images or blueprints [LO2, LO3, LO4].

Assessment criteria

To get the pass mark for the coursework, student will have to:

- Produce a report with analysis of CGI applicability
- Discuss the pipeline of work for the asset development
- Define the CGI development workflow

To get the excellent mark for the coursework, student will have to:

- Produce a solid report with analysis and evaluation of CGI applicability
- Justify the pipeline of work for the asset development

- Rationalize the CGI development workflow

To get the pass mark for the in-class test, student will have to:

- Produce a 3D asses according to given requirements with minor inaccuracies
- Follow the given workflow
- Apply surface qualities, lighting, textures at minimum level

To get the excellent mark for the in-class test, student will have to:

- Produce a high quality 3D asset fully complied with given requirements
- Accurately follow the given workflow
- Apply surface qualities, lighting, textures, and imported graphic files at high quality level

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type (e.g. essay, presentation, open exam or closed exam)
Coursework	50%	30%		<i>Report</i>
In-class test	50%	30%		<i>Closed exam in computer lab</i>

Synoptic assessment

N/A

Sources

1. Finch, C. (2013). The CG Story: Computer Generated Animation and Special Effects. Monacelli Press.
2. Chopine, A. (2012). 3D art essentials: the fundamentals of 3D modeling, texturing, and animation. Focal Press.
3. Hawkins R., (2015). *Vertex*. 3rd edition, E-book
4. Lord, P., & Sibley, B. (2010). Cracking animation: The Aardman book of 3-D animation. Thames & Hudson.

Online Sources

1. 3Ds Max Documentation <http://docs.autodesk.com/3DSMAX/15/ENU/3ds-Max-Help/index.html?url=files/GUID-8677D7F6-B959-43E2-9E5D-78C3EA4F56FB.htm,topicNumber=d30e5351>
2. Blender Documentation <https://docs.blender.org/>

MODULE PROFORMA		
Full module title: Information Security		
Module code: 6COSC016C	Credit level: 6	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Nargiza Akramova		
Extension:	Email:	
Host course and course leader: BSc Business Information Systems, Shirin Primkulova		
Status: option		
Subject Board: BSc Business Information Systems		
Pre-requisites: none	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
<p>Summary of module content:</p> <p>The module covers all aspects of information security requirements for organisations, major threats and risks that affect security of network, data or computers, and the methods to minimise the risks with technical mechanisms. The module comprises three main parts: Overview of Information Security, Data Security and Network Security.</p>		

Learning outcomes

By the end of the module the successful student will be able to:

1. Determine the role and value of CIA triad (Confidentiality, Integrity and Availability) for organizations;
2. Explain the compliance with information security policies, international standards and frameworks;
3. Identify and develop risk management and business continuity plan for organizations;
4. Develop ways of countering different types of threat;
5. Apply basic architecture of information security mechanisms including encryption, access controls, and authentication to a given case.

Course outcomes the module contributes to:

- L6.1. Evaluate the organisational and managerial implications of IS/IT considering factors of the business environment
- L6.4. Identify, apply and evaluate various information systems and information management techniques for business/science related tasks.
- L6.6. Critically analyse current trends in technology and suggest most appropriate resources/tools for given business problem

Indicative syllabus content

- Overview of Information Security: CIA Triad, Introduction to information security components including Data Security, Network Security and Computer Security.
- Security Risk Management: Identifying, Assessing and Treating risks.
- Compliance with IS Standards, Regulations and Frameworks: ISO 27000, NIST, Business Continuity Strategies, Information Assurance.
- Threat analysis and countermeasures: Types of cyber-attacks.
- Encryption: Cryptographic algorithms and their application, PKI and Digital Signatures.
- Network Security: Firewalls, VPNs, Intrusion Detection and Prevention Systems, VoIP Security
- Computer Security: OS security models, Unix Security, Windows Security, Virtual Machines, Cloud Computing.

Teaching and learning methods

Module will be delivered by means of weekly lectures, seminars and practical workshops.

The emphasis will be on students' in-class and independent learning activities: guided reading and individual research, using a range of module textbooks, commentary, IT vendor product information and additional professional sources.

In tutorials students will discuss real case studies and do practical exercises to strengthen the knowledge of Information Security topics discussed in lecture classes.

Student presentations case studies with given tasks in tutorials will reinforce module materials.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	12
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by means of coursework and final exam.

Coursework is aimed to assess the students' theoretical practical knowledge on information security principles and their applications to prevent real-time data breaches happening in organizations. The component covers LO2, LO3, LO4, LO5.

Final Exam will assess students' aptitude to grasp the module materials and additional reading. It will test whether students can explain and analyse the theoretical knowledge in detail through relevant examples within a specified time. Exam covers LO1, LO5.

Assessment criteria

Coursework- Students will have to critically analyse a recent data breach happened in any organization worldwide. Students will implement a security risk management plan and propose a secure design to improve the information security of the specific organisation. They will also need to

justify the implemented security standards (e.g. ISO 27000) and frameworks (e.g. NIST) for their organisations to minimize the risks of future cyber-security attacks. This component covers LO2, LO3, LO4, LO5.

Exam- This is a time constrained closed book exam. Students will answer the closed questions regards to information security principles, the technical components of Network, Data and Computer Security, and reflect other knowledge gained throughout the lectures and tutorials of the module. This component covers LO1, LO5.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Coursework 1	60%	30%		<i>Coursework</i>
Exam	40%	30%		<i>Closed book, time-constrained examination</i>

Synoptic assessment

N/A

Sources

1. Ousley, R. M. (2013). Information Security: The Complete Reference, 2nd ed. Mc Graw Hill.
2. Andress, J. (2011). The basics of Information Security: Understanding the Fundamentals of InfoSec in Theory and Practice, 1st ed. Syngress.
3. Whitman, M., Mattord, H. (2012). Principles of Information Security, 4th ed. Course Technology. Cengage Learning

MODULE PROFORMA		
Full module title: Machine Learning and Data Analytics		
Module code: 6COSC017C	Credit level: 6	Length: Semester long
UK credit value: 20	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Dilshod Ibragimov, Nodira Nazyrova		
Extension: 643	Email: dibragimov@wiut.uz ,	
Host course and course leader: BSc Business Information Systems, Shirin Primkulova		
Status: Option		
Subject Board:		
Pre-requisites: Business Intelligence Systems	Co-requisites: none	
Study abroad: none.		
Special features: none		
Access restrictions: none.		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
Summary of module content: This module will provide an overview of modern techniques in Machine Learning and Data Mining that are particularly customised for Data Science applications. Students will be introduced to a range of toolkits, such as R and Python and they will explore the features and strengths of different machine learning and data mining methodologies using selected data sets related to specific public sector or businesses application domains.		

Learning outcomes

By the end of the module the successful student will be able to:

1. Critically justify the use of data mining and machine learning techniques for Data Science applications.
2. Critically reflect on how different data mining and machine learning algorithms operate and their underlying design assumptions and biases in order to select and apply an appropriate algorithm to solve a given problem.
3. Implement, encode and test data mining/machine learning projects, focused on problem analysis, data pre-processing, data post-processing by choosing/implementing appropriate algorithms.
4. Critically analyse the output of data mining and machine learning algorithms by drawing technically appropriate and justifiable conclusions resulting from the application of data mining and machine learning algorithms to real-world data sets.
5. Perform critical evaluation of performance metrics for data mining and machine learning algorithms for a given domain/application.

Course outcomes the module contributes to:

- L6.4. Identify, apply and evaluate various information systems and information management techniques for business/science related tasks
- L6.6. Analyse current trends in technology and suggest most appropriate resources/tools for given business problem

Indicative Syllabus Content:

- **Introduction to data mining and machine learning.** Overview of the process and associated tasks. Example applications.
- **Types of data:** attributes, instances. Populations and samples, data cleaning. Random variables and distributions. R and Python.
- **Data Preparation:** descriptive and inferential statistics, correlation, statistical significance
- **Data Visualization:** graphs, charts, dashboards
- **Data Dimensionality reduction:** Principal Components Analysis, Kernel PCA, Probabilistic PCA
- **Predictive Modelling:** Classification problem formulation. Algorithmic elements: representation, scoring functions, search, inference. Overview of basic algorithms (e.g., naive Bayes, decision trees, nearestneighbor). Evaluation metrics, cross-validation, learning curves.
- **Descriptive Modelling:** Clustering problem formulation. Algorithmic elements: representation, scoring functions, search, inference. Overview of basic algorithms (e.g., k-means, hierarchical clustering,). Evaluation:metrics, subjective assessment.
- **Neural Networks-SVM:** basic principles of self-organisation and supervised learning, representation aspects of neural networks, neural network basic MLP structure, as well as SVM for regression & classification

Teaching and learning methods

Lectures, seminars/tutorials, formative tests and quizzes, interactive discussions and simulations. Lectures will introduce key concepts while tutorials will have a very practical focus, based on problem solving. Students will use workshops to individually work on the practical aspects with the use of provided instructions by the lecturer.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	24
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	12
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed by a combination of coursework and exam. The coursework will be an independent practical component (50%). The exam (50%) will assess the ability to explain and apply the concepts involved in the area of Machine learning and data analytics.

Assessment criteria

The coursework will be in the form of a project, where students will be given a large data set and they will be asked to fully implement data mining/machine learning techniques, focused on problem analysis, data pre-processing, data post-processing. Students must choose and implement appropriate algorithms;

Students also need to perform critical evaluation of the performance of data mining and machine learning algorithms for a given domain/application. The students will be expected to produce a written report on their analysis of the data set resulting from applying their own implementation of the algorithm(s).

The exam will assess the student's ability to explain and discuss the techniques in Data Mining and Machine Learning. Student should have a wide knowledge of different data mining/machine learning techniques and evaluate different methods of data mining, with the application of some of the techniques on real cases. Selection of techniques should be justified. To pass the module student should be able to demonstrate a basic knowledge of algorithms and differentiate their application. To get a higher mark student should have a deep understanding of machine learning and data mining techniques and be able to apply those techniques on datasets and critically analyze the results.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark	Qualifying set	Assessment type
Coursework	50%	30%		<i>Coursework</i>
Exam	50%	30%		<i>Exam</i>

Synoptic assessment

N/A

Sources

The text books listed below are recommended but not required. Reading materials will be distributed, as necessary, through the University's learning management system.

1. Tan P-N., Steinbach M. and Kumar V. (2006): Introduction to Data Mining, Addison Wesley.
2. Han J. and Kamber M. (2006): Data Mining: Concepts and Techniques, Morgan Kaufmann.
3. Bishop C. (2007): Pattern Recognition and Machine Learning, Springer Verlag.
4. Further Reading
5. Provost F. and Fawcett T. (2013): Data Science for Business, O'Reilly Media.

MODULE PROFORMA		
Full module title: Strategy in a Complex World		
Module code: 6BUSS008C	Credit level: 6	Length: year long
UK credit value: 20 credits	ECTS value: 10 credits	
Faculty and Department: WIUT		
Module Leader(s): Timur Perkov		
Extension: 657	Email: tperkov@wiut.u	
Host course and course leader: BA (Hons) Business Administration, Iroda Komilova		
Status: Core		
Subject Board: BA (Hons) Business Administration		
Pre-requisites: None	Co-requisites: None	
Study abroad: n/a		
Special features: n/a		
Access restrictions: n/a		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
<p>Summary of module content:</p> <p>Strategy in a Complex World is an integrative interdisciplinary module based on the extensive use of concepts and techniques covered in other business disciplines such as accounting, finance, marketing, organizational behavior, or information systems. It assumes a broad view of the environment, which is dynamic and complex. The primary focus is the organization and competitive environment in which it operates, its long-term direction and strategy, its resources and competitive capabilities, and its prospects for success. The module explores the relationship of effective strategic management to good business performance, the foundational concepts and tools of strategic analysis and decision-making.</p>		

Learning outcomes

By the end of the module the successful student will be able to:

1. Articulate an issue or argument in the context of business and evaluate the strengths and weakness of such argument based upon background research of the issue.
2. Identify and analyse the main features of an organisation's external environment and assess their impact on its performance and strategy
3. Identify and evaluate an organisation's internal resources, competences and assess how these contribute to its competitive advantage
4. Identify and appraise an organisation's competitive and corporate strategies
5. Propose and evaluate alternative strategic options for an organisation in the context of a strategic analysis, make recommendations and consider some key implementation issues using standard business strategy frameworks and tools.

6. Critically examine the role of social and environmental sustainability in competitiveness of businesses.

Course outcomes the module contributes to:

- L6.1 Demonstrate core competencies related to the practices of strategic management, project management, digital marketing, corporate finance (as per selected pathways) (KU);
- L6.2 Working collaboratively critically examine the strategic and/or operational policies that managers may adopt to help organisations adapt in business environment (KU/KTS);
- L6.7 Develop skills required to manage different business situations/settings, work out solutions and facilitate decision-making (KTS);

Indicative syllabus content

1. What is strategy, the challenge of making strategy and making it work.
2. Strategic Analysis, what are the forces determining the nature and outcomes
3. The process of determining business strategy; levels of strategy.
4. Mission, objectives & goals; Role of stakeholders.
5. Analysing the external environment: PEST analysis; industry structure; industry life cycle; strategic groups; segmentation.
6. Internal analysis: resources [tangible & intangible] and competences; value chain;
7. The internal sources of distinctiveness. Different types of value chains for manufacturing, professional service and network type of organizations. Sustainability; corporate culture.
8. Competitive strategy: Porter's model & strategy clock; Blue Ocean and other strategic model: sustainability of competitive advantage; resource-based view of competitive advantage, the role CSR in a competitive strategy
9. Corporate strategy: strategies of multi-product, diversified corporations; Mergers, acquisition and alliances.
10. Globalisation: need for global integration versus local responsiveness; internationalisation strategies
11. Strategies in international contexts: The evolution of multi-nationals and trans-national companies. Locally responsive, global and trans-national strategies.
12. Strategic Issues: Leadership, Governance and Regulation, Internationalisation, Emerging markets and Globalization, Social Engagement, Corporate Social Responsibility, Sustainability, Environmental and Technology impact, Cultures, Ethical frameworks and Dilemmas
13. Strategic options & their evaluation.
14. Strategic Architecture. Organizational structure and systems Cultures, ethical frameworks and regulation
15. Basic concepts and concerns of business ethics. Contemporary ethical dilemmas and examine their implications for business
16. Strategy implementation: organisational structures; resources, planning and control systems; managing change.
17. New Technologies for Business Leaders: The application of VR/AR and AI for improving customer engagement

Teaching and learning methods

Teaching will involve lectures that will provide the concepts, models and frameworks required to understand the subject; seminars and guided activities that will enable students to apply the theory and models to a variety of strategic issues and problems using written, video and online case studies, scenarios and case-in-point situations. Demonstration will involve video cases and external visits will be arranged with executives from local industries.

Activity type	Category	Student learning and teaching hours*
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Lecture	Scheduled	24
Seminar	Scheduled	52
Project supervisor		
Demonstration	Scheduled	2
Practical Classes and workshops	Scheduled	
Supervised time in studio/workshop		
Fieldwork		
External visits	Scheduled	2
Work based learning	Scheduled	
Total Scheduled		80
Placement	Placement	
Independent study	Independent	120
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

Coursework 1 of 30% is a group-based assessment to enable students. The course work measures LOs 2, 3, 4, 5. This assessment includes a formative assessment where cases will be discussed with students and feedback will be provided in the classroom.

Coursework 2 of 40% is an individual assignment that aims to assess student's critical thinking while they are articulating modern topics and issues in business environment with the use of their background knowledge, real-life cases and literature as evidence. The assignment evaluates understanding of LOs 1 and 6.

Exam of 30 % is a time-constrained examination assessment to test students' abilities to analyse a pre-seen case and use this analysis to answer questions under time constraints. The examination assesses understanding of LOs 1, 2, 3, 4, 6.

Assessment criteria

Measures the ability of students to apply theory of business strategy to particular firms and industries through an analysis of case studies and work within a group, allocate tasks, receive and give ideas and produce a collective report.

The group work will be managed in accordance with approved WIUT group work policy which can be found from the following link:
<http://registrar.wiut.uz/SiteAssets/SitePages/Academic%20Council%20agendas%20and%20papers/3.6%20%20Group%20work%20policy%20WIUT%20v5.pdf>

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark %	Qualifying set	Assessment type
Coursework 1	40%	30%		<i>Group work assignment</i>
Coursework 2	30%	30%		<i>Individual written assignment</i>
Exam	30%	30%		<i>Closed book examination</i>

Synoptic assessment

N/A

Sources

1. Crane, A. & Matten, D. (2019) Business Ethics, 5th ed., Oxford University Press.

2. David, F. & David, F. (2017) Strategic Management: A competitive Advantage Approach. Concepts and Cases, 16th ed., Pearson
3. Fisher, C., Lovell, A. & Valero-Silva, N. (2013) Business ethics and values, 4th ed., Pearson
4. Gamble, J., Peteraf, M. & Thompson, A. (2018) Essential of Strategic Management: The Quest for Competitive Advantage, 6th ed., McGraw-Hill.
5. Hill, C., Shilling, M. & Jones, G. (2016) Strategic Management: Theory: An Integrated Approach, 12th ed., Cengage Learning
6. Hitt, M. (2016) Strategic Management: Concepts and Cases: Competitiveness and Globalization, 12th ed., Cengage Learning
7. Peng, M. (2014) Global Strategic Management, 3rd ed., South-Western.
8. Stacey, R. (2015) Strategic Management and Organisational Dynamics: The challenge of complexity to ways of thinking about organisations, 7th ed., Person.

Link to the online sources

1. Strategic Management www.strategicmanagementinsight.com
2. Strategic Management Resources www.strategicmgmtresources.com
3. Business Ethics <http://www.business-ethics.com>
4. Ethics World <http://www.ethicsworld.com/>
5. Ethics Resource Center www.ethics.org
6. Center for Business Ethics www.bentley.edu/cbe
7. Ethics Resource Center www.ethics.org
8. <http://www.emeraldinsight.com/action/doSearch?AllField=Business+Ethics&content=articlesChapters>
9. <http://www.emeraldinsight.com/action/doSearch?AllField=Business+ethics+and+values&content=articlesChapters>
10. <http://www.emeraldinsight.com/action/doSearch?AllField=Exploring+Corporate+Strategy&content=articlesChapters>
11. <http://www.emeraldinsight.com/action/doSearch?AllField=Global+Strategic+Management&content=articlesChapters>
12. <http://www.emeraldinsight.com/action/doSearch?AllField=Theory+of+Strategic+Management&content=articlesChapters>

* Essential reading list will be updated every year by the module team.

Date of initial validation:

Dates of approved modifications:

Date of re-validation/review:

MODULE PROFORMA		
Full module title: Project Management		
Module code: 6PJM004C	Credit level: 6	Length: 1 semester
UK credit value: 20 credits	ECTS value: 10	
College and School: WIUT		
Module Leader(s): Ulugbek Islamov		
Extension: 618	Email: uislamov@wiut.uz	
Host course and course leader: BA (Hons) Business Management; Iroda Komilova		
Status: Pathway Core for Business Management		
Subject Board: BA (Hons) Business Management		
Pre-requisites: None	Co-requisites: None	
Study abroad: n/a		
Special features: n/a		
Access restrictions: n/a		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organization(s) other than the University of Westminster. No		
<p>Summary of module content:</p> <p>Effective project management is fundamental to the success of projects in all areas of business. This module aims to provide students with an understanding of the theory that underpins modern project management practice, together with experience of applying techniques through individual and group work. The content of this module covers the common needs of projects in all areas of business.</p>		

Learning outcomes

Upon completion of this module, the successful student should be able to:

1. Critically examine the need for project management in various organisations.
2. Effectively apply project management tools and techniques for planning.
3. Plan and manage risks within project environment.
4. Effectively apply project performance monitoring and controlling techniques
5. Critically evaluate the success factors of a project within given context.
6. Critically examine strategies for developing, managing and working within teams in distinguishing project environment.

Course outcomes the module contributes to:

- L6.1 Demonstrate core competencies related to the practices of strategic management, project management, digital marketing, corporate finance (as per selected pathways) (KU);

L6.4 Critically evaluate and analyse arguments, assumptions, abstract concepts and data (that may be incomplete) to make own judgements (PPP, KTS);

L6.7 Develop skills required to manage different business situations/settings, work out solutions and facilitate decision-making (KTS);

Indicative syllabus content

- Introduction to Project Management
- Organizational need for Project Management
- Organizational Strategy and Projects. Selection of projects and success factors.
- Project Management life cycle.
- Initiation of a project. Scoping a project.
- Project planning. Cost estimation, project scheduling and resourcing.
- Project monitoring and controlling.
- Quality Management and Maturity
- Aspects of Risk Management in projects.
- Human side of projects. Competences of a Project Manager.
- Financing and legal aspects of projects.
- Contemporary methodologies in project management.

Teaching and learning methods

Teaching methods will include online lectures accompanied by an hour-long sessions for questions and answers. Practical classes and workshops will focus on the application of theory and techniques as well as on discussions of the use of case studies. Namely, the use of project management planning tools both online and offline (MS Project) is part of workshops and will include a mix of individual and group exercises, which are formatively assessed and will help to prepare students for the module summative assessments. As part of independent study, students will be asked to review other literature on the subject and prepare for individual assessments.

Activity type	Category	Student learning and teaching hours*
Lecture	Scheduled	12
Seminar	Scheduled	
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	36
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

* the hours per activity type are indicative and subject to change.

Assessment rationale

Summative individual assessment measures LO1, LO2 and LO3, while exam will test LO4, LO5 and LO6.

Assessment criteria

Individual coursework is aimed at testing learning outcomes of the module and to provide students with a chance to develop a rigorous and carefully developed project plan and to gain a first-hand understanding of the issues involved in organizing and planning a project.

The end-of-module examination is designed to test student's ability to analyse and evaluate the project performance and the project as a whole, as well as to provide valuable recommendations for future projects, apply and analyse project and change management theory to specific issues and problems and to be able to conduct this analysis under a time constraint.

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark %	Qualifying set	Assessment type
Coursework	50%	30%		A Project Management Plan
Exam	50%	30%		A case-based exam

Synoptic assessment

N/A

Sources

1. PMBOK Guide (2017). *A Guide to the Project Management Body of Knowledge*, 6th edition.
2. Kerzner, H. (2018). *Project Management: A systems approach to planning, scheduling and controlling*. 12th edition, Wiley.
3. Kerzner, Harold (2017). *Project management metrics, KPIs, and dashboards - a guide to measuring and monitoring project performance*, 3rd Edition, John Wiley & Sons
4. Lock, D. (2013). *Project Management*. 10th edition, Gower.
5. Larson, E. and Grey, C. (2017) *Project Management: The Managerial Progress*, International edition, McGraw-Hill
6. Mantel, S. (2014) *Core Concepts: Project Management in Practice*, Wiley
7. Meredith, S. and Mantel, S. (2014) *Project Management a Managerial Approach*, Gower

Link to the online sources

1. <https://www.pmi.org/>
2. <https://journals.sagepub.com/toc/pmx/current>
3. <https://journals.sagepub.com/doi/pdf/10.1177/8756972819841260>
4. <https://onlinelibrary.wiley.com/journal/19389507>
5. <http://epmj.org/journals/>
6. <https://www.agilebusiness.org/page/Resources>
7. <https://prince2.wiki/>

* Essential reading list will be updated every year by the module team.

Date of initial validation:

Dates of approved modifications:

Date of re-validation/review:

MODULE PROFORMA		
Full module title: Digital Marketing		
Module code: 6MARK018C	Credit level: 6	Length: 1 semester
UK credit value: 20	ECTS value: 10	
College and School WIUT		
Module Leader(s): Umidjon Akhunjonov		
Extension: 485	Email: uakhunjonov@wiut.uz	
Host course and course leader: Business Management, Iroda Komilova		
Status: Pathway Core for Business Management with Marketing		
Subject Board: Marketing		
Pre-requisites: None	Co-requisites: None	
Study abroad: n/a		
Special features: n/a		
Access restrictions: n/a		
Are the module learning outcomes delivered, assessed or supported through an arrangement with an organisation(s) other than the University of Westminster. No		
<p>Summary of module content:</p> <p>This module arms students with the essential principles and practices of marketing in the digital economy. In this business and management module, students will gain an understanding of how the digital economy works and develop the critical insights necessary to succeed in e-commerce and digital and social media marketing.</p>		

Learning outcomes

1. Select and rationalize new models in business to increase profitability
2. Apply digital marketing tools and tactics in the real business
3. Assess successful social media techniques
4. Design e-strategies for the company

Course outcomes the module contributes to:

- L6.1 Demonstrate core competencies related to the practices of strategic management, project management, digital marketing, corporate finance (as per selected pathways) (KU);
- L6.2 Working collaboratively critically examine the strategic and/or operational policies that managers may adopt to help organisations adapt in business environment (KU/KTS);
- L6.6 Critically assess the processes by which organizations innovate to sustain and improve their performance (KU);

Indicative syllabus content

1. New Business Models of the Digital Economy: Introduction to GRAVITY
2. Online-Offline Interaction and the Omni Channel World
3. Digital Marketing Assets, Tools and Tactics
4. Search engine marketing1: tools and technics
5. Search engine marketing2: tools and technics
6. Online Advertising: Approaches and Principles
7. Networks and Network Effects
8. Viral Product Features and Viral Content
9. Organic Celebrity, Persuasion, and Sentiment
10. E-Marketing remix
11. E-models: revenue models
12. E-customer relationship management

Teaching and learning methods

Lectures will introduce key concepts and theories and provide some relevant practical examples. Practical classes and workshops will be interactive involving practical workshops, case analysis, student presentation and reflective learning. It will teach students practical knowledge by PC-lab presentations and class discussion.

Activity type	Category	Student learning and teaching hours*
Interactive Lecture	Scheduled	12
Seminar	Scheduled	
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical Classes and workshops	Scheduled	24
Supervised time in studio/workshop	Scheduled	12
Fieldwork	Scheduled	
External visits	Scheduled	
Work-based learning	Scheduled	
Total Scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

*the hours per activity type are indicative and subject to change.

Assessment rationale

The module will be assessed via two course works:

CW 1 comes in the form of in-module practical exercise. The in-module assessment (40 %) will assess student's ability to use of digital marketing tools and tactics and their ability to assess work within a team [LO 2]. It is a written report of the outcomes of practical exercise.

CW2 (60%) is an individual written report designed to assess students' ability to apply and use new business models, tools, technics of digital economy and ability to design e-campaigns/e-strategies of the business to market more effectively and efficiently [LOs 1, 2, 4].

Assessment criteria

CW1- in-module practical exercise:

- Ability to come up with keyword choice and reason it
- Ability to decide appropriate tag line and meta-description and to justify its attractiveness

CW2 – individual written report:

- Ability to propose new models which fits into the changing environment of digital era

- Ability to apply successful social media techniques to achieve success in the social media campaigns
- Ability to create e-campaign/e-strategy for business and to justify the rationale of the strategy

Assessment methods and weightings

Assessment name	Weighting %	Qualifying mark %	Qualifying set	Assessment type
Coursework	40	30 %		Practical exercise
Coursework	60	30 %		Individual written report

Synoptic assessment

NA

Sources

1. Bell, D.R., (2014). *Location is (still) everything: The surprising influence of the real world on how we search, shop, and sell in the virtual one*. Houghton Mifflin Harcourt.
2. Chaffey, D. (2015) *E-Business and E-Commerce Management: Strategy, Implementation and Practice*, 6th edition. Financial Times/Prentice Hall, Harlow. Chapter 8 introduces the concept of e-marketing and its relationship with e-commerce and e-business. http://charsoomarketing.com/wp-content/uploads/downloads/2016/02/Dave_Chaffey_PR_Smith_Emarketing_Excellence_PL.pdf
3. Melissa S. Barker, (2017) *Social Media Marketing: A Strategic Approach* (2nd edition)
4. Harun Yilmaz, (2018). *Marketing In The Post-Truth Era: Group Marketing*.
5. Bell, D.R., Gallino, S. and Moreno, A., 2014. How to win in an omnichannel world. *MIT Sloan Management Review*, 56(1), p.45.
6. Chris Anderson, (2006) *The Long Tail; Why the future of business is selling Less of More* http://dl.motamem.org/long_tail_chris_anderson_motamem_org.pdf
7. Wu, L. and Brynjolfsson, E., (2015). The future of prediction: How Google searches foreshadow housing prices and sales. In *Economic analysis of the digital economy* (pp. 89-118). University of Chicago Press.
8. Underlying Theory: See Hal Varian, Chief Economist of Google video <https://www.youtube.com/watch?v=PjOHTFRaBWA>

Cases

1. How to Win in an Omnichannel World - www.researchgate.net/publication/279332914
2. The CEOs of shaving startup Harry's explain how they acquired a million customers in 2 years – Business Insider
3. MedNet.com Confronts“Click-Through” Competition – Harvard Business School
4. Molson Canada – Social media marketing – University of Western Ontario
5. Desifirangi.com: Building a niche e-commerce portal – Ivey publishing

Link to the online sources

1. Academic Journals:
2. Journal of Digital & Social Media Marketing
3. Journal of Marketing

4. Journal of Targeting, Measurement and Analysis for Marketing
5. Journal of Direct, Data and Digital Marketing Practice
6. Digital Marketing Journal
7. Journal of Research in Interactive Marketing

* Essential reading list will be updated every year by the module team.

Date of initial validation:

Dates of approved modifications:

Date of re-validation/review: