Course Handbook

MSc Building Services
2019/20
Course Leader: Darius Tabrizi
School of Engineering

Please read this Handbook in conjunction with the University's Student Handbook.

COURSE SUBJECT TO CHANGE

This course is subject to formal course review and reapproval by the University during 2018/19 as part of its normal cycle of regular review (a process called Periodic Review). Course information and programme specifications are updated and reviewed as part of this process and course structure and content may be changed to enable the University to deliver a better quality of educational experience to students. This can be in response to various factors including: student feedback; annual reports from external examiners; feedback from the sector or industry advisors or as part of the regular review process by course teams.

This process may well result in changes to the structure and content of the current course as outlined in this Handbook. Any changes made as a result of the process will be immediately included in the course documentation and all students holding current offers will be provided with revised versions prior to the commencement of their programme. If you are not satisfied with the changes, you will be offered the opportunity to withdraw from the programme and, if required, reasonable support to transfer to another provider. The expected timetable for completion of this reapproval process is August 2019.
 *subject to reapproval

Contents

1. Welcome to the course

People spend the major part of their lives inside buildings which provide them with an environment that is comfortable and commensurate for intended activities. While the weather may fluctuate to the extreme limits of high and low climatic conditions, the building indoor, albeit at the expense of energy, is kept within comfortable thermal, aural and visual conditions. It is estimated that forty per cent of a nation's energy expenditure takes place in keeping the indoor condition healthy, comfortable, safe and productive. The relentless pursuit for better lives has not been without the risk of losing bearing. In recent years the detection of global warming trend and the realisation that the fossil fuels, the traditional sources of energy, have been depleting at very fast rates, have posed mankind to the challenge of the era that the civilisation has to consider sustainability issues seriously. Traditionally, the Building Services Engineers have been concerned with the design of healthy and comfortable indoor environment and issues of energy uses and its conservation. The challenge of the era entails him to be a Building Services Engineer who applies this knowledge and education to ensure that his engineering solutions lead to a sustainable design.

So, I greet you with the warmest welcome to the course of Master of Science in Building Services that will enhance your knowledge to meet the new challenges of the future as a conscientious, imaginative and innovative engineer.

1.1 Rationale, aims and learning outcomes of the course

This MSc course is designed to encourage students to approach their academic and professional careers as creative and innovative managers and engineers and to ensure that the successful graduates will have potential to contribute to significant advances in engineering and technological and social issues associated with the building engineering services industries.

The level of education provided by the programme is appropriate to those students who will eventually hold senior positions with consultants or contractors engaged in the building services engineering and energy management or with technical departments of government and semi-government institutions where building energy management is a major concern. Throughout the programme emphasis will be placed on self-motivation, critical thinking and developing analytical depth.

The MSc Building Services course emphasises the application of modern, sustainable and energy efficient Engineering systems in the context of the Built Environment. The course is well respected and widely recognised within the Building Services industry in Britain and abroad, and is accredited by the Chartered Institution of Building Services Engineers (CIBSE) and by the Energy Institute (EI).

The application of sustainable Building Services Engineering is multi-disciplinary and it is envisaged that, as in the professional world, you will carry out project work, which will facilitate dialogue between the Engineer and other members of the design and management team. It is the development of novel technological and engineering

solutions within the often contradictory constraints of sustainability, safety, economy and energy efficiency, and the law which pose the challenge in the course.

In the past, Building Services Engineering education often centred on practical engineering analysis and training, however this focus is now changing in the light of the requirements for sustainability and energy efficiency in all that we do. This course will promote the need to question accepted wisdom to provoke independent critical thought. In a time of rapid technological advances, when the international community is aware of and sensitive to a range of environmental issues, you will gain sufficient understanding of current developments and their underpinning technology to analyse and offer solutions to the problems faced by today's engineers in the fields of Building Services and associated engineering disciplines.

As a result you will find that the programme is now characterised by parallel themes of design and management of project work, complemented throughout by the drive towards sustainability and energy efficiency of engineering solutions. The management theme will develop your capabilities as a project manager, whilst the project modules will provide scope for integrative studies on practical engineering and design situations.

Aim

The course aims:

- Encourage students to approach their academic and subsequent professional careers as creative and innovative managers and engineers
- Ensure that successful graduates will have the potential to contribute to significant advances in engineering and technological and social issues associated with the building services industries
- Enable graduates in engineering disciplines to progress in their studies to specialise and develop their project and facilities management skills in application to building services problems
- Extend critical and evaluative skills in technologies and related sciences in the resolution of building services problems
- Develop leadership and team skills
- Provide the opportunity for students to complete specialist modules which will facilitate the development of their critical appreciation in new areas.
- Extend the student's research methods skills and their application to research development

Learning outcomes for the course are included in the programme specification in appendix 8.1

1.2 Course Team

The management of the programmes in the School and the evaluation of the effectiveness of the management process take place within the mechanism established for that purpose by the University through the School's Management and the Committee Structures. This is achieved at course level by a course team. The function of the Course Team is to administer the programme within the regulations and policies laid down by the University, taking such tactical decisions as are necessary to ensure the maximum effectiveness of the programme.

For any enquiry on the course, the contact person is the Course Leader: Darius Tabrizi e-mail: dtabrizi@uclan.ac.uk , Tel: 01772 894223. The course is delivered by the course team comprising the Course Leader, Module Tutors, Dissertation tutor and industrial experience tutor. Admission enquiries can be made to the Course Leader.

The course draws and assimilates the expertise from academic staff linked to all academic units of the school. A core group of staff, whose contact details are given in the table below,:

Academic Staff (MSc Building Services)

KABBARA Hilal	Senior Lecturer	HKabbara	0177289 4206	Km122
LOWE Christopher	Senior Lecturer	Cnlowe	0177289 3960	KM012
Mcdonnell Timothy John	Senior Lecturer	TJMcdonnell	0177289 3524	KM107
PARR Eric	Lecturer	EParr1	01772893205	Km122
TABRIZI Darius	Senior Lecturer	DTabrizi	0177289 4223	Km122

1.3 Expertise of staff
The course team supporting the teaching and learning consists of academically and professionally qualified engineers. As well as teaching and learning activities, they are engaged in Scholarly Activities, Knowledge Transfer and Academic Research.

1.4 Academic Advisor
You will be assigned an Academic Advisor who will provide additional academic support during the year. They will be the first point of call for many of the questions that you might have during the year. Your Academic Advisor will be able to help you with personal development, including developing skills in self-awareness, reflection and action planning.

1.5 Administration details
Course Administration Service provides academic administration support for students and staff and are located in the following hubs which open from 8.45am until 5.15pm Monday to Thursday and until 4.00pm on Fridays. The hub can provide general assistance and advice regarding specific processes such as extenuating circumstances, extensions and appeals.

Allen Building
Medicine
Dentistry
telephone: 01772 895566
email: AllenHub@uclan.ac.uk

Harris Building
Lancashire Law School
Humanities and the Social Sciences
Centre for Excellence in Learning and Teaching
telephone: 01772 891996/891997

email: HarrisHub@uclan.ac.uk

Foster Building
Forensic and Applied Sciences
Pharmacy and Biomedical Sciences
Psychology
Physical Sciences
telephone: 01772 891990/891991
email: FosterHub@uclan.ac.uk

Computing and Technology Building
Art, Design and Fashion
Computing
Journalism, Media and Performance
Engineering
telephone: 01772 891994/891995
email: CandTHub@uclan.ac.uk

Greenbank Building
Sport and Wellbeing
Management
Business
telephone: 01772 891992/891993
email: GreenbankHub@uclan.ac.uk

Brook Building
Community, Health and Midwifery
Nursing
Health Sciences
Social Work, Care and Community
telephone: 01772 891992/891993
email: BrookHub@uclan.ac.uk

1.6 Communication

The University expects you to use your UCLan email address and check regularly for messages from staff. If you send us email messages from other addresses they risk being filtered out as potential spam and discarded unread. Staff normally use e-mail or e-learn facilities to communicate with students. In some cases a telephone can be used as a communication means.

1.7 External Examiner

The University has appointed an External Examiner to your course who helps to ensure that the standards of your course are comparable to those provided at other higher education institutions in the UK. The name of this person, their position and home institution can be found below. If you wish to make contact with your External Examiner, you should do this through your Course Leader and not directly. External Examiner reports will be made available to you electronically.

The MSc Building Services External Examiner is Dr. Mostafa Darwish

Senior Lecturer University of Southwales

2. Structure of the course
2.1 Overall structure

The course provides modules at level 7 of national academic curriculum. For a successful completion of the course, students must pass 180 credit worth of modules . Modules offered comprise compulsory and optional/elective modules at all levels. Students must pass all compulsory modules and a number of optional/elective modules as recommended and depending on their entry qualification to meet the course requirement.

Full time students will complete the degree in one year of study, In part time mode, the programme is designed to operate over two years, students usually enter the programme with an BEng (Hons) or equivalent and sufficient years of experience, however ,we normally request an upper second class honours degree from Building Services Engineering disciplines however applicants with appropriate industry experience having lower qualifications or from related study themes deemed to be equivalent are considered subject to interview and successful completion of the additional modules.

The course programme includes optional modules so that the successful candidate receives an appropriate engineering education that will help him to obtain credits towards his professional qualification.

2.2 Modules available
Each module is a self-contained block of learning with defined aims, learning outcomes and assessment. A standard module is worth 20 credits. It equates to the learning activity expected from one sixth of a full-time undergraduate year. Modules may be developed as half or double modules with credit allocated up to a maximum of 120 credits per module.

Modules available on the programme are detailed in the programme specification in appendix 8.1.
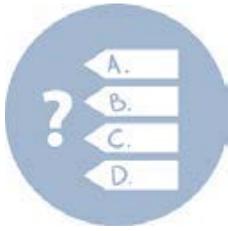
2.3 Course requirements

Student's final award is based on the average of the Modules studied at level 7. For further information on the modules please refer to Appendix 8.1.

Upon completion of the MSc students can register as graduate members with the Chartered Institution of Building Services Engineers (CIBSE)or Energy Institute (EI). For more information about full membership and Chartered status please refer to respective institution for membership requirements

2.4 Module Registration Options

Discussions about your progression through the course normally take place in February each year. It is an opportunity for you to make plans for your study over the next academic year. The course team will tell you about the various modules / combinations available and you will both agree on the most appropriate (and legal) course of study for you.

2.5 Study Time
2.5.1   Weekly timetable

The weekly time tables will be made available to the students prior to the commencement of the academic year. You can access your online timetable here:

https://intranet.uclan.ac.uk/ou/lis/Pages/DailyWeekly-Timetables.aspx

2.5.2   Expected hours of study

20 credits is a standard module size and equals 200 notional learning hours. The normal amount of work involved in achieving a successful outcome to your studies is to study for 10 hours per each credit you need to achieve – this includes attendance at UCLan and time spent in private study.

2.5.3 Attendance Requirements

You are required to attend all timetabled learning activities for each module. Notification of illness or exceptional requests for leave of absence must be made to your Course Leader Darius Tabrizi DTabrizi@uclan.ac.uk Tel: 01772 894223.

For international students, under the UK Border Agency (UKBA), Points Based System (PBS) - you MUST attend your course of study regularly; under PBS, UCLan is obliged to tell UKBA if you withdraw from a course, defer or suspend your studies, or if you fail to attend the course regularly.

If you have not gained the required authorisation for leave of absence, do not respond to communications from the University and if you are absent for four weeks or more, you may be deemed to have withdrawn from the course. If this is the case, then the date of withdrawal will be recorded as the last day of attendance.

You are being monitored through SAM so you can check your attendance record through myUCLan. For those who attend on Part-time basis they can share their attendance information with employers who sponsor their studies.

Each time you are asked to enter your details on SAM you must remember that the University has a responsibility to keep information up to date and that you must only enter your own details on the system. To enter any other names would result in inaccurate records and be dishonest. Any student who is found to make false entries can be disciplined under the student guide to regulations.

3. Approaches to teaching and learning
3.1 Learning and teaching methods
Methods are of a varied nature. They consist of a range of design based exercises, lectures and tutorials to ensure Knowledge and understanding are achieved. As well as those, at levels 4 and 5, project based assignments and examination papers based upon problem solving techniques are used.

At level 7 the use of the design project and dissertation modules which focus upon individual study and group based activities enables students to show a critical awareness of the significance and scope of their chosen discipline, particularly its contribution to the built environment and to society.   The importance of the design project modules which run throughout the programme is emphasised in evaluating the appropriateness of different approaches to solving problems related to building services and sustainable engineering. It also initiate, devise and develop a working personal and professional development plan by participation on the course programme, completing the necessary key skills and working with tutors within a structured and managed learning environment. This will ensure Specific skills are achieved.

The use of design based modules which involve individual and team based design activities is achieved primarily by setting scenario based assignments and examination papers to meet thinking skills. An investigative approach in learning can be achieved at levels 5 and 6 as well.

A useful tool to the students is E-learn using Blackboard portal. They can access materials uploaded already by lecturers for each module they are studying. Students are encouraged to access those before lectures take place in order to pre-read and familiarise themselves with the lesson (s). They are also encouraged to use the tutorials uploaded for the purpose of completing their classwork, homework and assignments.

3.2 Study skills
Students are expected to prepare for lecture/tutorial sessions and workshop, to read directed materials, and to use other materials in their preparation. Students are also expected to spend time on completing homework and assignments. More hours are expected during the workshop when it takes place to practice skills and apply concepts into a real exercise.

Students are expected to take part in discussion and review material to demonstrate their understanding of issues in the context of Building Services Engineering and the environment. Seminars and practical sessions will further students understanding of Engineering Services by enabling them to explore concepts in detail. There will be opportunities for group working allowing students to develop a range of skills including numeracy, self-organisation, accessing information and effective communication and presentation skills.

There are a variety of services to support students and these include

WISER http://www.uclan.ac.uk/students/study/wiser/index.php

3.3 Learning resources
3.3.1 Learning Information Services (LIS)

Extensive resources are available to support your studies provided by LIS – library and IT staff. Take advantage of the free training sessions designed to enable you to gain all the skills you need for your research and study.

3.3.2 Electronic Resources

LIS provide access to a huge range of electronic resources – e-journals and databases, e-books, images and texts.

Materials such as CIBSE, ASHRAE and other relevant guides can either be access from the library data base or upon request can be uploaded by lecturers on e-learn.

3.4 Personal development planning

Personal development planning is closely related to the acquisition of personal transferable skills and developing such skills is an integral part of the course. Academic skills alone are clearly insufficient to meet the demands of Building Services Engineers. The development of additional interpersonal qualities is essential to enable you to initiate, direct and control events effectively. To help achieve this objective, much of the tutorial and assignment work in the modules will provide you with the opportunity for practical project work and the development of problem solving skills.

Self and peer assessment forms part of your group projects, presentation exercises and the final year project, as it is important to remember that when you leave education, it will be crucial that you the ability and confidence to rely on your own judgement of yourself and your peers.

Employers do not simply look for basic competences such as in numeracy, literacy and communication skills, but also for motivation, time management, decision making, reliability, team work and leadership skills. Your programme of study has been designed to help you to develop all of the above mentioned skills and more.

3.5 Preparing for your career

Your future is important to us, so to make sure that you achieve your full potential whilst at university and beyond, your course has been designed with employability learning integrated into it at every level. This is not extra to your degree, but an important part of it which will help you to show future employers just how valuable your degree is. These "Employability Essentials" take you on a journey of development that will help you to write your own personal story of your time at university:

•	To begin with, you will explore your identity, your likes and dislikes, the things that are important to you and what you want to get out of life.

•	 Later, you will investigate a range of options including jobs and work experience, postgraduate study and self- employment,

•	You will then be ready to learn how to successfully tackle the recruitment process. It's your future: take charge of it!

Futures offers a range of support for you including:-

•	career and employability advice and guidance

- access to work placements, internships, voluntary opportunities, part-time employment and live projects
- workshops, seminars, modules, certificates and events to develop your skills
- business start-up, freelance and self-employment advice
- the Futures Award, a University Certificate which formally recognises your employability and enterprise achievements whilst at UCLan.

For more information come along and visit the team or access our careers and employability resources via www.uclan.ac.uk/futures.

The bulk of our intake is part-time and therefore our students are already employed in the industry holding varied positions such as designers, project engineers, contract engineers, maintenance managers etc. However, the few full-time intakes can always be advised by their tutors on how their modules are helpful in their practical careers. For example they are advised on why and how design projects and systems design modules are useful if they want to pursue a career in design consultancies and how plant & maintenance and controls modules are useful in a maintenance job etc. We also do encourage old graduates to come and talk to our existing students to give them advice and talk about their personal experience. In addition, we do receive vacancies from companies requiring graduate engineers. Those will be forwarded to those who are seeking employment and in most cases they are successful in securing a job.

4. Student Support

4.1 Academic Advisors
Your Academic Advisor is someone you can go to for help and advice relating to your course. You will be contacted by them from time-to-time to see how you are going on and to help you address any issues or concerns.

4.2 Students with disabilities
If you have a disability that may affect your studies, please either contact the Disability Advisory Service - disability@uclan.ac.uk - or let one of the course team know as soon as possible. With your agreement information will be passed on to the Disability Advisory Service. The University will make reasonable adjustments to accommodate your needs and to provide appropriate support for you to complete your study successfully. Where necessary, you will be asked for evidence to help identify appropriate adjustments.

Assessment arrangements for students with a disability

Arrangements are made for students who have a disability/learning difficulty for which valid supporting evidence can be made available. Contact the Disability Adviser for advice and information, disability@uclan.ac.uk

4.3 Students' Union
The Students' Union offers thousands of volunteering opportunities ranging from representative to other leadership roles. We also advertise paid work and employ student staff on a variety of roles. You can find out more information on our website: http://www.uclansu.co.uk/
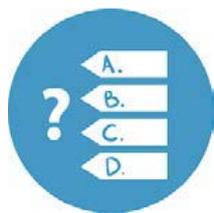
5. Assessment

5.1 Assessment Strategy

Please note that all modules will be assessed. You are expected to attempt all required assessments for each module for which you are registered, and to do so at the times scheduled unless authorised extensions, special arrangements for disability, or extenuating circumstances allow you to defer your assessment.

Depending on the learning outcomes and the nature of the module the assessment strategies can be:

- By completion of assignments and problem based examinations in the engineering and related modules throughout the programme.

- By presentations, design based projects.

- By student presentations, group work, design projects, dissertation, examination.

5.2 Notification of assignments and examination arrangements

Students will be notified of individual and /or group assignments as well as final assessments and their respective deadlines for submission within module information packs. Assignment brief are uploaded on Blackboard for student access. The date and time of the submission will be clear on the assignment brief together with the marking criteria for each part of the assignment.

5.3 Referencing

The referencing details will be set out on the assignment brief given out to students. Usually the course adopts the Harvard referencing style.

5.4 Confidential material

Students should be aware of the ethical and legal responsibilities to respect confidentiality and maintain the anonymity of individuals and organisations within their assignments.

5.5 Cheating, plagiarism, collusion or re-presentation

Please refer to the information included in section 6.6 of the University Student Handbook for full definitions. The University uses an online Assessment Tool called Turnitin. A pseudo-Turnitin assignment will be set up using the School space on Blackboard to allow students to check as many drafts as the system allows before their final submission to the 'official' Turnitin assignment. Students are required to self-submit their own assignment on Turnitin and will be given access to the Originality Reports arising from each submission. In operating Turnitin, Schools must take steps to ensure that the University's requirement for all summative assessment to be marked anonymously is not undermined and therefore Turnitin reports should either be anonymised or considered separately from marking. Turnitin may also be used to assist with plagiarism detection and collusion, where there is suspicion about individual piece(s) of work.

6. Classification of Awards

The University publishes the principles underpinning the way in which awards and results are decided in Academic Regulations. Decisions about the overall classification of awards are made by Assessment Boards through the application of the academic and relevant course regulations.

7. Student Feedback

You can play an important part in the process of improving the quality of this course through the feedback you give. In addition to the on-going discussion with the course team throughout the year, there are a range of mechanisms for you to feedback about your experience of teaching and learning. We aim to respond to your feedback and let you know of our plans for improvement.

Student feedback is vital to the course improvement. For example, students would express concerns regarding accommodation, subject delivery, assessments and timetable. These concerns can always be useful to the course delivery and its improvement.

The SLO and the Students Union can support you in voicing your opinion, provide on-going advice and support, and encourage your involvement in all feedback opportunities. They will be requesting that you complete the National Student Survey (during semester 2 for students in their final year of study) or the UCLan Student Survey (all other students).

Other opportunities are available for students to voice their opinion such as SSLC (as noted below). Other means can be through Module Evaluation Questionnaires (MEQs) at the end of each module.

7.1 Student Staff Liaison Committee meetings (SSLCs)
Details of the Protocol for the operation of SSLCs is included in section 8.2 of the University Student Handbook.

The purpose of a SSLC meeting is to provide the opportunity for course representatives to feedback to staff about the course, the overall student experience and to inform developments which will improve future courses. These meetings are normally scheduled once per semester. Your Course Leader will facilitate the meetings using Guidelines and provide a record of the meeting with any decisions and / or responses made and / or actions taken as a result of the discussions held. The meetings include discussion of items forwarded by course representatives, normally related to the following agenda items (dependent on time of year). Your Student Engagement Assistance will be invited to attend and support the resolution of any issues. The course team encourage student feedback in all areas and recognise that additional items for discussion may also be raised at the meeting
- Update on actions completed since the last meeting
- Feedback about the previous year – discussion of external examiner's report; outcomes of National /UCLan student surveys.
- Review of enrolment / induction experience;
- Course organisation and management (from each individual year group, and the course overall);
- Experience of modules - teaching, assessment, feedback;
- Experience of academic support which may include e.g. Personal Development Planning, personal tutoring arrangements and The Card;
- Other aspects of University life relevant to student experience e.g. resources, IT, library;
- Any other issues raised by students or staff.

Course representatives are elected at the beginning of the Academic year. Usually students either come forward or get nominated by other members of the class. Usually, and depending on the size of the class, one or two student reps can be elected, and where the class is a mixture of full and part time students one for each will represent the class.

Student-staff Liaison meetings take place twice a year; once in each semester. Students will be notified by e-mail about the date, time and place of the scheduled meetings. Thereafter,

an action plan will be drafted and students will receive feedback about actions taken as a result of discussions held within 15 working days.

8. Appendices

8.1 Programme Specification(s)

UNIVERSITY OF CENTRAL LANCASHIRE

Programme Specification

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided.

Sources of information on the programme can be found in Section 17

1.	**Awarding Institution / Body**	University of Central Lancashire
2.	**Teaching Institution and Location of Delivery**	University of Central Lancashire
3.	**University School/Centre**	School of Engineering
4.	**External Accreditation**	CIBSE, Energy Institute (EI)
5.	**Title of Final Award**	MSc Building Services MSc Building Services with work placement MSc Building Services with Professional Placement
6.	**Modes of Attendance offered**	Part-time, Full-time
7.	**UCAS Code**	Not applicable
8.	**Relevant Subject Benchmarking Group(s)**	Building & Surveying
9.	**Other external influences**	SARTOR, ULSpec
10.	**Date of production/revision of this form**	January 2015 (PCR)
11.	**Aims of the Programme**	

- Encourage students to approach their academic and subsequent professional careers as creative and innovative managers and engineers
- Ensure that successful graduates will have the potential to contribute to significant advances in engineering and technological and social issues associated with the building services industries
- Enable graduates in engineering disciplines to progress in their studies to specialise and develop their project and facilities management skills in application to building services problems
- Extend critical and evaluative skills in technologies and related sciences in the resolution of building services problems
- Develop leadership and team skills
- Provide the opportunity for students to complete specialist modules which will facilitate the development of their critical appreciation in new areas.
- Extend the student's research methods skills and their application to research development

12. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding
A1. Evaluate appropriate skills in order to progress their academic and subsequent professional careers as creative and innovative managers and engineers A2. Reflect critically the key skills relating to the strategic management of operations and projects, including financial and legal consideration in private and the parallel public sectors of industry A3. Critically evaluate the application of law and managerial skills in the context of building services and sustainable engineering projects A4. Use industry standard computational programmes and peripherals in the application of projects, problems and simulations.
Teaching and Learning Methods
The teaching methods employed will involve a series of seminars, lectures and informal tutorials.
Assessment methods
Assessment will be through the use of case studies, presentation of papers, and examinations.
B. Subject-specific skills
B1. Analyse problems and make contribution to advances in engineering and technological and social issues associated with the building services. B2. Display a critical awareness of the significance and scope of their chosen discipline, particularly its contribution to the built environment and to society B3. Evaluate the appropriateness of different approaches to solving problems related to building services and sustainable engineering B4. Initiate, devise and develop a working personal and professional development plan by participation on the course programme, completing the necessary key skills and working with tutors within a structured and managed learning environment
Teaching and Learning Methods
Seminars, tutorials and guest lectures
Assessment methods
Assessment will be via the use of case studies, presentation of papers and examinations
C. Thinking Skills
C1. Analyse issues and concepts in respect to the Building Services technologies and related sciences in the resolution of Building Services problems. C2. Apply underlying concepts and principles outside the context in which they were first studied; C3. Display a critical awareness of the limits of their knowledge and how this influences analyses and interpretations based on this knowledge
Teaching and Learning Methods
Teaching methods will include key note lectures and seminars.
Assessment methods
Assessment will be via the use of case studies, presentation of papers and examinations
D. Other skills relevant to employability and personal development
D1. Understand, appraise and analyse and apply project and facilities management skills. D2. Display a critical awareness and appropriate communication skills so that the graduates may convey their ideas effectively and imaginatively in a clear and concise manner to both the related professions and to persons outside the industry; D3. Develop the student's research methods operational skills and the ability to plan and execute a research study. D4. Progress and develop key learning skills and acquire new competences in a structured manner by use of a personal and professional development plan that will enable the candidates to assume significant responsibility within organisations. D5. Display qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision making.
Teaching and Learning Methods
PP presentations, project work , work shops
Assessment methods
Assignment, Examinations and Dissertation

13. Programme Structures*				14. Awards and Credits*
Level	**Module Code**	**Module Title**	**Credit rating**	
Level 7	NT4011	MSc Dissertation	60	**Master of Science Building Services with professional placement** Requires 9 module passes (180 credits) at level 7 plus successful completion of EL4101
	BN4440	Strategic Project Management	20	
	NT4021	HVAC for a Sustainable Environment	20	
	NT4023	Engineering Design Project	20	**Master of Science Building Services with work placement** Requires 9 module passes (180 credits) at level 7 plus successful completion of EL4102
	NT4035	Carbon Regulation and Policy	20	
	BN4521	Facilities Management	20	**MSc in Building Services** Requires 180 credits at Level 7.
	NT4025	Sustainable Electrical Services and Lighting	20	**Exit Awards:** **Postgraduate Diploma in Building Services** Requires 120 credits at Level 7.
	BN4503	Contractual Issues	20	
	EL4101	Professional Placement (Engineering)	120 (Notional)	**Postgraduate Certificate in Building Services** Requires 60 credits at Level7
	EL4102	Work Placement (Engineering)	60 (Notional)	

15. Personal Development Planning

Personal development planning is closely related to the acquisition of personal transferable skills and developing such skills is an integral part of the course. Academic skills alone are clearly insufficient to meet the demands of Building Services Engineers. The development of additional interpersonal qualities is essential to enable student to initiate, direct and control events effectively. To help achieve this objective, much of the tutorial and assignment work in the modules will provide students with the opportunity for practical project work and the development of problem solving skills.
PDP provides support for students to:
- increase their self-awareness of their own skills, qualities, attitudes and capabilities
- improve their own learning and performance by developing the necessary skills for independent learning, taking responsibility for their own development
- identify their own strengths, weaknesses and needs, and directions for change
- set goals and plan action for developing, monitoring and reviewing their own progress
- compile a record of learning experiences and achievement, with progress reviews, personal reflections and action plans
- Plan realistically for their career progression and manage their own career development.

Students are therefore encouraged to keep their personal development records and samples are provided in the student handbook :
a)   Improving personal performance: evaluation sheet
b)   Evaluating progress on learning goals
c)   Record of work History
d)   Learning through work
e)   Priorities for personal development

16. Admissions criteria

Programme Specifications include minimum entry requirements, including academic qualifications, together with appropriate experience and skills required for entry to study. These criteria may be expressed as a range rather than a specific grade. Amendments to entry requirements may have been made after these documents were published and you should consult the University's website for the most up to date information.

Students will be informed of their personal minimum entry criteria in their offer letter.

- Upper second class honours degree from Building Services Engineering disciplines. However applicants with appropriate industry experience having lower qualifications or from related study themes deemed to be equivalent will be considered and will be subject to interview and may be required to complete additional modules prior to entry.
- Overseas equivalent qualifications and English IELTS 6.5 or equivalent if English is not the first language.

17. Key sources of information about the programme

http://www.uclan.ac.uk/information/courses/msc_building_services.php

18.   Curriculum Skills Map

Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Level	Module Code	Module Title	Core (C), Compulsory (COMP) or Option (O)	Knowledge and understanding				Subject-specific Skills				Thinking Skills			Other skills relevant to employability and personal development				
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	D1	D2	D3	D4	D5
7	NT4011	Dissertation	Comp																
	NT4021	HVAC for a Sustainable Environment	Comp	√			√	√	√	√	√	√	√		√	√	√	√	√
	NT4035	Carbon Regulation and Policy	Comp			√		√	√	√	√				√	√	√	√	√
	NT 4023	Engineering Design Project	Comp	√	√			√	√	√	√			√	√	√	√	√	√
	NT4025	Sustainable Electrical Services and Lighting	Comp	√			√	√	√	√	√	√	√		√	√	√	√	√
	BN4521	Facilities Management	Comp	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√
	BN4440	Strategic Project Management	Optional		√			√	√	√	√		√	√	√	√	√	√	√
	BN4503	Contractual Issues	Optional	√	√	√	√		√	√	√			√	√	√	√	√	√
	EL4101	Professional Placement (Engineering)	Optional		√	√	√	√	√	√		√	√		√	√	√	√	√
	EL4102	Work Placement (Engineering)	Optional		√	√	√	√	√	√		√	√	√	√	√	√	√	√