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| **Bachelor of Engineering (Honours) Degree**  **in Building Services Engineering** |

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| 1. **Awarding Institution/Body** | University of Kent |
| 1. **Teaching Institution** | Mid Kent College |
| 1. **Teaching Site**   **Mode of Delivery** | Maidstone  Part Time |
| **Programme accredited by** | |
| Chartered Institute of Building Services Engineering (CIBSE) (Pending)  Engineering Council (Pending) | |
| 1. **Final Award** | BEng (Hons) |
| 1. **Programme** | Building Services Engineering |
| 1. **UCAS Code (or other code)** |  |
| 1. **Relevant QAA subject benchmarking group(s)** | * Architecture, Architectural Technology, Landscape Architecture. * Construction, Property and Surveying * Engineering |
| 1. **Date of production/revision** | June 2012/June2013 |
| 1. **Applicable cohort(s)** | 2013 entry onwards |

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| 1. **Educational Aims of the Programme**   The programme aims to: |
| This programme is for those working in, or intending to pursue a technical, professional and management career in Building Services Engineering, and related fields.  Engineering Degree qualifications are designed to provide the exemplifying levels of understanding, knowledge and skills for professional competence. The qualifications provide a thorough grounding in the key concepts and practical skills required in the construction sector and their national recognition by employers allows progression direct into employment. There is a strong emphasis on academic development alongside the development of requisite knowledge and understanding of Building Services. Learners are attracted to this strong vocational programme of study that meets their individual progression needs whether this is into employment or to further study on degree or professional courses.  In this context and in relation to the mission statement of UoK, the programme aims to:   1. provide a course of excellent quality to equip students with the necessary skills, underpinning knowledge, understanding and motivation for a range of technical professional and management roles in Building Services Engineering. 2. offer a variety of learning and work-related experiences to foster self-confidence and autonomy to enable students to meet the challenges and demands of their chosen professions. 3. offer wide and flexible entry to allow students from all backgrounds to commence study in September and study part time and to accommodate study to suit personal and work situations. 4. enable mature students who seek to change career or re-train to access new vocations and educational progression routes 5. promote the development of staff to stay informed and progress with industrial and educational practices, establish strong networking links with employers and accommodate special research interests 6. act as a guaranteed basis for progression to studies at degree level and facilitate entry to professional institutes such as the Chartered Institute of Building Services Engineers.   In relation to the teaching and learning strategy, the programme aims to:   1. complement and support students in their pursuit of a technical and professional role in the workplace appropriate to their personal career aims. 2. promote confidence in dealing with situations and problems of a technical social and industrial nature. 3. provide specialised studies relevant to students’ present or planned occupation and profession 4. provide a high quality system of tutorial support and guidance to encourage a mature approach to study and develop personal, social and transferable skills to increase the potential of students to enable them to achieve their goals. 5. widen the students’ educational perspective. 6. enable students to form a broad knowledge base and apply this to the critical analysis and discussion of current issues relating to construction and building services. 7. offer a varied range of learning experiences, to develop analytical, problem-solving, interpersonal, team-working and presentation skills. 8. promote the appropriate personal qualities and attitudes required for successful performance in working life to enable students to contribute effectively to employment in the construction sector. 9. extend knowledge through enabling students to manage their own learning and carry out independent research. 10. prepare students for a range of technical, professional and management careers in building services engineering by providing specialised studies which are directly relevant to individual occupations and professions in which students are currently working or in which they intend to seek employment 11. enable students to make an immediate contribution in employment in the building services engineering sector 12. provide students with understanding, knowledge, know how, skills, awareness and motivation as a basis for progression to graduate and postgraduate studies 13. develop a range of skills and techniques, personal qualities and attitudes essential for successful performance in working life 14. provide further study, career development and progression from a Technician ‘Technical Certificate’ at level 3 within or following an Advanced Modern Apprenticeship (AMA) 15. provide a significant basis for progression to chartered Engineer level. |

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| 1. **Programme Outcomes**   The programme outcomes have references to the subject benchmarking statement for   * Architecture (SB-A), Architectural Technology (SB-AT), Landscape Architecture. (SB – LA) * Construction, Property and Surveying (SB – CPS) * Engineering/UK SPEC (SB – E)   The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. | |
| **Knowledge and Understanding** | **Teaching/learning and assessment methods and strategies used to enable outcomes to be achieved and demonstrated** |
| **A. Knowledge and Understanding of:** |  |
| 1. The key concepts, theories, principles and approaches used in building services engineering, architectural design and building technologies, including the application of structure, construction, materials, applied science, mathematical applications, environmental design in relation to human needs, measurement, performance of buildings, resource management, and the application of management theories.   **(SB – CPS, 4.1)**   1. The context in which building services engineering and the construction industry operates, including the legal, social, economic, health and safety, cultural, technological, physical, environmental and global influences on its specialism and awareness of relevant contemporary issues. **(SB-CPS 4.1)**   Understand the relationship between people and buildings, and buildings and their environment and the need to relate buildings and the spaces between them to human needs. **(SB-A GC5)** | **Teaching & Learning**  In keeping with the aims of the programme, the teaching & learning approach is to provide a wide range of strategies throughout the programme.  The acquisition of 1 to 4 is generally through the required (core) modules, which aim to offer a broad base understanding upon which more specialist knowledge and topics can be built. Teaching & Learning Strategies adopted for these modules include: lectures, practical applications, individual and group activities, seminars, ILT applications, experiments and field studies, role play, discussion groups, problem solving, games & scenarios, site visits, research activities.  5 relates to the option modules which are chosen according to relevant disciplines and interests. Additional strategies to those above include more specific activities e.g. demonstrations, systems designs, evaluations and audits, planning, design and drawing tasks.  **Assessment**  Formative: course work, individual and group projects, graphical evidence, reports, technical CAD drawings, estimates, booking sheets, survey reports, research-based assignments, presentations, posters, collages, models, tests, experiment write-ups, reports, essays, peer assessments.  Summative: examinations, portfolios/transcripts of work-based projects. |
| 1. The ability to work effectively with others within the context of a multidisciplinary team respecting the respective inputs from fellow professionals, client(s) and other stakeholders and reflecting on ones own performance and role within the team   **(SB – CPS 5.2))**     1. Specialist knowledge, essential facts, concepts, principles and theories and the science, mathematics, technological and wider social and environmental base and business and management techniques relevant to a particular chosen discipline and the constraints within which judgements will have to be exercised,   **(SB – E/UK SPEC GLO IEng))** |
| **Skills and Other Attributes**  **B. Intellectual Skills:** |  |
| 1. Demonstrate independent and self-managed learning to identify own personal strengths and weaknesses and formulate strategies for improvement.   **(SB – CPS 5.2)**   1. Analysis, synthesis and evaluation of technical information and data and the ability to recognise and implement good practice**. (SB-AT 4.1)**      1. Be able to demonstrate creative and innovative ability in the synthesis of solutions and in formulating designs.   **(SB – E/UK SPEC GLO IEng))** | **Teaching/Learning**  The ‘Personal Skills’ modules specifically focus upon the development of intellectual skills. In addition lectures, individual and group activities, seminars, role play, discussion groups and research activities are incorporated within the planned diverse teaching & learning strategy of the programme.  **Assessment**  Individual assignments and essays, presentations, group presentations, seminar write-ups, examinations and research based projects. |
| **C. Subject-specific Skills:** |  |
| 1. Adequate knowledge of physical problems and technologies and the function of buildings so as to provide them with internal conditions of comfort and protection against the climate   **(SB – A GC9))**   1. Identify project requirements and the processes for project development 2. Understand procurement and contract processes   **(SB – CPS 7.8)**   1. Understanding of engineering principles and the ability to apply them to analyse key engineering processes 2. Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques 3. Ability to apply quantitative method and computer software relevant to Building Services engineering in order to solve problems 4. A systematic approach to engineering problems   **(SB – E/UK Spec SLO IEng)**   1. An ability to use the results of analysis to solve engineering problems , apply technology and implement engineering processes   **(SB – E/UK SPEC SLO IEng)** | **Teaching & Learning**  A range of teaching & learning methods will be offered in the optional modules i.e.: practical workshop tasks, science and experimental work, field trips, estimations, taking-off and abstracting, safe working practices, graphical skills including technical drafting, modelling and presentation, management and project planning skills, specialist IT skills including AutoCAD and custom built packages, specific research skills applied to disciplines.  **Assessment**  Experiment lab write-ups, demonstration and presentations of specific experiments and tests of materials. Survey reports. Portfolios and presentation of drawings and models incorporating technical drawings and AutoCAD documents. Estimating and tendering activities, Production of programmes, specifications, schedules and material/labour requirements. |
| **D. Transferable Skills:** |  |
| 1. Apply knowledge and understanding to address familiar and unfamiliar problems, including collecting, analysing and interpreting data, using appropriate quantitative and other equipment, and using standard and relevant IT software   **(SB – CPS 5.2)**   1. Analyse problems, using innovation, logical and lateral thinking in their solution and solve numerical problems using computer and non-computer based techniques   **(SB – AT 7.12)**   1. Communicate effectively with other people using visual, graphic, written and verbal means.   **(SB – AT 7.12)**   1. Appreciate the social, environmental, ethical, economic and commercial considerations affecting the exercise of their engineering judgement   **(SB-E/UK SPEC GLO IEng)** | **Teaching / Learning**  All programme modules will incorporate strategies to develop transferable skills. Problem solving skills: promoted through scenarios and case-studies. Communication skills developed through presentations to groups and peers, written exercises, discussions and role plays. Teamwork focusing upon groups planning and programme, to achieve deadlines, monitoring and evaluating performance. Develop client voice using IT to support. Research activities involving analysis of data, IT applications and presentations.  **Assessment**  Work-based examples plus logs, solutions, case study reports, and written projects, essays and technical writing.  Individual and group presentation to different audiences including external client panels.  Research-based projects incorporating ILT, quantative analysis and numerical applications |
| For more information on which modules provide which skills, see the module mapping | |

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| 1. **Programme Structures and Requirements, Levels, Modules, Credits and Awards**   The full BEng Honours programme is based upon the accumulation of credits by achieving required modules of study. Each single module is given a credit value of 15 credits which equates to approximately 150 hours of learning for the student. This includes self-study, assessment and direct contact teaching. 360 credits are required to obtain an Honours Degree with a minimum of 210 credits at level I or above which includes a minimum of 90 credits at level H (Credit Framework requirement – annex 4). Each module is designated at Certificate C, Intermediate (I) or Higher (H) level.  This top-up stage will generally accommodate two entry streams; Foundation Degree in Building Services Engineering and Higher National Diploma in Building Services Engineering. Both streams should have completed the equivalent of 240 credits. Subsequently the standard entrant will require 120 further credits.  The structure of the programme for the top-up stage for both of these streams to meet the requirements of the credit framework is laid out below. The modules available are subject to change: |

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| **Stage 3** | | | | |
| ***Required modules*** | | | | |
| **Code** | **Title** | **Level** | | **Credits** |
| UU639 | Energy Resources Utilisation and Economics | H | | 15 |
| UU637 | Energy in Buildings | H | | 15 |
| UU640 | Power Distribution Systems | H | | 15 |
| UU641 | Project Management for Building Services Engineers | H | | 15 |
| UU638 | Energy Systems Analysis | H | | 15 |
| UU642 | Computer-Aided Design for Construction and Building Services | I | | 15 |
| **Stage 4** | | | | |
| UU699 | Dissertation | H | 30 | |

Suggested time table for BEng (Hons) part time students

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|  | AM | | PM | | EVE | |
|  | Sem 1 | Sem 2 | Sem 1 | Sem 2 | Sem 1 | Sem 2 |
| Year 4 | AUTOCAD | Energy in Buildings | Energy Systems Analysis | Power Distribution Systems | Project Management for Building Services | Energy Resources Utilisation & Economics |
| Year 5 | Dissertation |  | Dissertation |  |  |  |

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| 1. **Work-Based Learning**   Disability Statement: Where disabled students are due to undertake a work placement as part of this programme of study, a representative of the University will meet with the work placement provider in advance to ensure the provision of anticipatory and reasonable adjustments in line with legal requirements. Not applicable to this programme |

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| 1. **Support for Students and their Learning** |
| The Department offers an effective support facility for students with the following key features;   1. A planned Induction which focuses upon supporting the students on entry and through the initial settling in period focuses on:  * Orientation – campus, staff, peers and facilities * Course requirements and assessment procedures * Health & Safety * Learning styles * Expected conduct * Identification of specific needs, levels and personal issues.  1. A programme handbook is issued to students to provide all essential information regarding aims, structure of programme and learning outcomes, staff, induction, health & safety, assessment requirements and procedures, academic standards, attendance and conduct, resources, equipment, quality assurance and support 2. Module guides are provided for each module and include a schedule of study, assessment details, learning outcomes and recommended reading. 3. The ‘Moodle’ virtual learning environment provides student access to the handbook, guides, learning material and other important information. 4. Personal Director – Provide personal support and regularly scheduled one-to-one tutorials. 5. Library and internet induction and study skills sessions 6. Student staff ratio 24:1.Teaching in small groups rather than lecture style situations and an ‘open-door’ tutoring facility offers a more effective two-way communication and support system. 7. High standard of learning resources including:  * AutoCAD suites to accommodate up to 30 students * Surveying school with up-to-date industry standard equipment: * Structures laboratory * Science Soils & Hydraulics laboratory * Renewable Energy equipment * Workshops  1. Curriculum Access Support Team to provide assistance and support to any students with special learning needs. 2. Disability -The programme will involve a number of practical aspects in the form of field trips, surveying activities, visits and experiments. Careful consideration in anticipation of the accommodation of the needs of students with any disabilities or specific personal requirements has been undertaken. It is possible to support students with disabilities on most activities but specific requirements or needs will be negotiated on an individual basis and potential adjustments that may reasonably be required to the curricula context, modes of delivery and assessment methods will be made. Each module that involves any practical element will include a statement that outlines any disadvantages that cannot be catered for in order to assist students in planning their learning, modules and pathways. 3. Student Services for assistance with careers and employability, counselling, financial and accommodation are available via Midkent College Services. 4. Additional complimentary services may be available via University of Kent dependent on the outcome of the Partnership Agreement to be confirmed Summer 2013 |

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| 1. **Entry Profile**   The minimum age to study a degree programme at the university is normally at least 17 years old by 20 September in the year the course begins. There is no upper age limit. |
| **Entry Route**  For fuller information, please refer to the University prospectus |
| * A Higher National Diploma in Building Services Engineering * A Foundation Degree in Building Services Engineering * Higher Diplomas or Degrees in other disciplines that offer the required credits and curriculum content. * Accreditation of prior learning (APL). We will consider any evidence of previous study and the ability to follow the proposed programme. |
| **What does this programme have to offer?** |
| * A wide range of learning and assessment experiences are provided throughout the course. The policy focuses upon student centred, varied and industrially relevant methods of teaching. * The department operates a small group teaching structure rather than adopting large lecture theatre situations. Typical lessons will involve researched based activities, individual and group projects, practical applications and seminar presentations to compliment the lecture. * Assessment will be mainly by on-going coursework requiring research, selection of information and presentation of results. Tests and examinations will be given on some modules where assessment of understanding of principles is required * Successful completion can benefit the pursuit of a career goal as a technician or professional working in the Building Services Engineering sector or, project Manager, Estimator or Services Design Technician.   The BEng (Hons) qualification will enable membership at CEng level with the Engineering Council. |
| **Personal Profile** |
| * Working as, or keen to, pursue a career as a professional in Building Services Engineering. * Interested in developing a wide range of skills appropriate to a chosen discipline and to apply these to personal, work-related and problem solving situations. * Willing to work as an effective motivated team member. * Eager to learn, study, research and debate construction topics in order to gain an understanding of all its relevant aspects; key concepts and principles; the context of the industry; professional standards and the specialist knowledge applicable to each discipline. |

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| 1. **Methods for Evaluating and Enhancing the Quality and Standards of Teaching and Learning** |
| **Mechanisms for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards** |
| * Student feedback on teaching, learning and quality matters obtained through mechanisms outlined below. * Programme and Module monitoring reports using the University of Kent process and templates. <http://www.kent.ac.uk/teaching/qa/codes/taught/annexe.html> * Staff feedback obtained, recorded and actioned formally through representation on the committees outlined below, in addition informal views and issues are discussed and actioned through Head of Department and Personnel/Management systems. * Observation system. Mid Kent College operates a system using trained observers to visit a department for a week and carry out observations along OFSTED lines and standards. Staff are given comprehensive feedback and graded on Teaching, Learning and Attainment. An action plan for the department is drawn up based upon the outcomes. * Appraisals & Mentoring. Focus is upon on-going observations carried out by Head of Department who visits classes on an unannounced ‘drop-in’ basis to view standards of teaching, learning and assessment and support tutors in a process of self-improvement. Weekly meetings with the Head of Department and other key/senior members of the team are held to develop teaching and learning.   New members of staff are supported through a team mentoring system that monitors and guides them through all aspects of their role.  Formal appraisals are held at least once a year by the Head of Department to address any difficulties and action personal development plans for each tutor.   * Internal Verification. The Department operates a rigorous IV system for all its programmes. A complement of 4 experienced IV’s implement the system using a structured procedure to check and agree: assessment plans; standards of all assessments before issue; assessment decisions on grades of assessed work and quality of feedback. Reports are given to each tutor on their standards of assessment. All checked items are stamped to show that they have been verified. * External Verification. An External Advisor is appointed for each programme who will: Receive agendas and minutes of programme team meetings; be a member of any review panel established to undertake annual or periodic programme review; inspect samples of marked student work. The purpose of such inspection will not be to moderate internal marking but to obtain information about student learning and achievement; submit an annual report to the University via the Office for Quality Assurance and Validation on the quality of the programme and of the learning experience of the students. The report will be copied to the College HE Liaison Officer and to the relevant Faculty Officer and will be considered by the Faculty Board when it considers the Annual Report on the programme submitted by the College. |
| **Committees with responsibility for monitoring and evaluating quality and standards** |
| * Programme Board meetings held each semester to discuss issues and concerns and general progress of students. Chaired by Programme Director to include views of relevant staff, student representatives and employer/work-placement representatives. Action plan formed to address items for improvement. * Annual programme review held near the end of the academic year to focus upon evaluating the strengths, weaknesses and resulting action including achievement, retention and main quality issues to be improved. Action plan made to consider Programme Director, Tutors, Employers Representatives, Student Representatives, External Advisor. * Examination Boards held for each programme at the end of each semester to agree and confirm grades and awards of students and consider appeals, special cases and issues and make subsequent decisions. * Divisional Board of Studies meets 3 times per year to review programme of department in context of the Construction and Engineering Division with particular references to: annual self-assessment reports; targets for recruitment, attendance, retention and achievement; internal and external validation procedures; monitoring of action plans; reports to the College Academic Board and Academic Standards Committee. Membership comprises: Head of Division, Heads of Departments for each curriculum team, Staff representatives, Quality representative, Student representative, representatives from other divisions. * Mid Kent College Committees responsible for monitoring and evaluating Quality: * Academic Board * Academic Standards Committee * Teaching & Learning Committee * Governing Body * University of Kent Committees: * Learning and Teaching Board * Programme Approval Sub-committee * Faculty Learning and Teaching Committee |
| **Mechanisms for gaining student feedback on the quality of teaching and their learning experience** |
| Student feedback is obtained using a number of mechanisms (with reference to the ‘Student Feedback’ resource pack prepared by UELT).   * Student representatives from each year of programme providing comments at Programme Board Meetings and Annual Programme Review Meeting. * Student representatives at Divisional Board of Studies, held 3 times a year. * Student representatives at Head of Divisions Programme Representatives meeting held near end of academic year. * Student representatives at Academic Board. * Individual evaluation questionnaires on quality of module * Tutorials with personal tutor programmed on a regular one-to-one basis * The Department operates an ‘open door’ tutorial system where tutors are generally available to meet students when not teaching or can arrange appointments. * ‘Moodle’ Virtual Learning Environment has been developed to establish a ‘message board’ facility to allow students to communicate and offer feedback. |
| **Staff Development priorities include:** |
| * All tutors appointed to teach on the programme are expected to possess a first degree or equivalent as a minimum level of qualification. There may be occasions however where specialist topics are covered by sessional/visiting lecturers who have a particular expertise but do not possess the above minimum level of qualification. This arrangement will need to be at the discretion of the programme director and through the programme team in liaison with the External Advisor. * All tutors will be required to obtain appropriate teaching qualifications as a priority.   To this effect with regard to commencement of teaching the programme, full time tutors are expected to obtain stage PTLLS, CTLLS & DTLLS or equivalent within 3 years. Sessional tutors are expected to obtain stage PTLLS, CTLLS & DTLLS or equivalent within 4 years.   * CPD needs are to be discussed and agreed as part of the Personal Action Plan with the Head of Faculty to ensure any specialist training or developmental needs are addressed. * All tutors are encouraged to pursue Higher Degrees in mutually agreed areas. * All tutors are encouraged to investigate and bid for research projects that compliment the nature and topics of the programme. * All tutors are encouraged to apply for membership of an applicable Professional Institute and pursue the CPD networking and research benefits that are provided. * CPD and updating seminars, training sessions and conferences will be offered as required and staff will be expected to attend and contribute positively. |

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| 1. **Indicators of Quality and Standards** |
| * Periodic Reviews – Most recent 2009 * A range of awards by employers and Professional Institutes including ABE, ICE, CIOB and CIAT given for student achievement on the Department’s programmes. * Investors in People Quality Kitemark for Mid Kent College * The Building services engineering programme is in the process of being approved by CIBSE and accredited by the Engineering Council. |

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| The following reference points were used in creating these specifications: |
| * QAA Subject Bench Marking Statement for: * Construction Property and Surveying * Engineering * Architecture, Architectural Technology, Landscape Architecture * UK SPEC * University of Kent, Unit for the Enhancement of Learning and Teaching resource packs. * Chartered Institute of Building Education framework 2007 |