PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	MEng (Hons)
4	**Programme Title**	Master of Engineering in Mechanical Engineering with Honours in one of ten named options
5	**UCAS/Programme Code**	Stage 0 Entry Stage 1 Entry Mechanical Engineering Mechanical and Automotive Engineering Mechanical and Design Engineering Mechanical and Manufacturing Engineering Mechanical and Materials Engineering Mechanical and Railway Engineering Mechanical Engineering and Mechatronics Mechanical Engineering with Management Mechanical Engineering with Mathematical Modelling Mechanical Engineering (Europe) (until 2008 only – entry discontinued)
6	**Programme Accreditation**	IMechE, IET (2006): CEng
7	**QAA Subject Benchmark(s)**	http://www.qaa.ac.uk/academicinfrastructure/benchmark/statements/Engineering06.pdf
8	**FHEQ Level**	M
9	**Date written/revised**	June 2002 Revised: April 2004; October 2004; May 2005; July 2006; September 2007

10 Programme Aims

The programme aims to enable suitably qualified students from a range of school, Further and Higher Education backgrounds to:

- Provide the engineering industry and profession, in the UK and elsewhere, with employable and enterprising graduates prepared for the assumption of technical, managerial and financial responsibilities.
- Develop students' knowledge, skills (including transferable skills) and understanding, as well as awareness and "know how", in the field of mechanical engineering and its related disciplines (electronic and materials engineering, manufacturing, mathematical modelling, industrial management) so that as graduates they will be equipped to enter employment as professional engineers (progressing on to chartered engineer or equivalent status) or a wide range of other professional careers.
- Provide, in the later stages, specialisation in the specified area of engineering to enhance their professional capability in their chosen field, as demonstrated by a major final year team engineering project:
    - *Mechanical Engineering:* in contrast to the other named specialist streams below, the later stages of this degree maintain the breadth of the earlier stages, to produce graduates capable of developing into senior roles in which they may be required to understand and manage a broad spectrum of engineering activities.
    - *Mechanical & Automotive Engineering:* the later stages of this degree focus on

meeting the requirements of the automotive consultancy industry and specialist vehicle designers as well as automotive and automotive component manufacturers.

- *Mechanical & Design Engineering:* the later stages of this degree place an emphasis on the core engineering activity of mechanical engineering design and its supporting engineering knowledge and tools, in particular exploring the relationship between design and manufacture.
- *Mechanical & Manufacturing Engineering:* while remaining within the broader mechanical engineering context, the later stages of this degree explore the synergy between manufacturing and mechanical and materials engineering, as well as industrial management, to develop the mix of general and specific skills appropriate to the manufacturing sector.
- *Mechanical & Materials Engineering:* the later stages of this degree are intended to produce engineers who understand the behaviour of materials during the manufacture, subsequent service life and finally decommissioning of products and who know how to tailor materials for special functional needs.
- *Mechanical & Railway Engineering:* the later stages of this degree focus on developing engineers who can contribute effectively to the multi-disciplinary environment of the rail and mass-rapid-transport industries.
- *Mechanical Engineering & Mechatronics:* building on the basic mechanical engineering core, the later stages of this degree introduce students to precision engineering and instrumentation, electronic control, real-time computing and systems thinking for the design of innovative products in an inter-disciplinary engineering context.
- *Mechanical Engineering with Management:* while all engineering degrees have management content, the later stages of this degree focus on the management needs of manufacturing and technology-based organisations and the application of technology and systems thinking to support management activities.
- *Mechanical Engineering with Mathematical Modelling:* the later stages of this degree aim to respond to industry's need for engineers who understand the underlying mathematical and engineering science principles of the powerful new simulation, analysis, design and control tools available through modern computing technology.

- Prepare students to engage in life-long learning (eg professional CPD or further Higher Education) and critical enquiry with skills in research and knowledge acquisition and an appreciation of the value of education to the wider community.
- Provide students with internationally recognised qualifications which meet the requirements of the Framework for Higher Education Qualifications at Levels H and M and of the subject Benchmark Statement for Engineering and of the Engineering Council UK, UKSpec for CEng Accredited Integrated Masters' Degrees.
- Achieve the above in the contexts of the School, SAgE Faculty and University business plans, following the University's policies and procedures and conforming to the relevant sections of the QAA Code of Practice.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Engineering and to UK Spec Learning Outcomes as specified by degree programme accreditors IMechE and IET.

Knowledge and Understanding

On completing the programme students should:

A1 Knowledge and understanding of scientific principles and methodology necessary to underpin their education in mechanical and related engineering disciplines, to enable appreciation of its scientific and engineering context and to support their understanding of future developments and technologies in mechanical engineering and manufacturing. (UK Spec US1)

A2 A comprehensive understanding of the scientific principles of mechanical, manufacturing and related engineering disciplines. (UK Spec US1m)

A3 Knowledge and understanding of mathematical principles necessary to underpin their education in mechanical and related engineering disciplines. (UK Spec US2)

A4 A comprehensive knowledge and understanding of mathematical models relevant to the mechanical and related engineering disciplines, and an appreciation of their limitations (UK Spec US2m)

A5 An understanding of concepts from a range of areas including business and industry, sustainability and the environment, legal and finance. (UK Spec US3m)

A6 The ability to understand and apply Engineering principles to analyse key processes in manufacturing and mechanical and related engineering.. (UK Spec E1)

A7 Wide knowledge and comprehensive understanding of engineering design processes and methodologies and the ability to apply and adapt them in unfamiliar situations (D1m)

A8 Knowledge and understanding of commercial and economic context of mechanical engineering processes (UK Spec S1)

A9 Knowledge of management techniques which may be used to achieve engineering and manufacturing objectives within the context of mechanical engineering processes. (UK Spec S2)

A10 Knowledge and understanding of industrial management and business practices, and their limitations (UK Spec S2m)

A11 Understanding of the requirement for mechanical engineering activities to promote sustainable development (UK Spec S3)

A12 Knowledge of characteristics of particular mechanical and related engineering equipment, processes or products (UK Spec P1)

A13 Understanding of current mechanical engineering and manufacturing practice and its limitations and some appreciation of development trends (UK Spec P1m)

A14 Knowledge and understanding of a wide range of engineering materials and components (UK Spec P2m)

A15 Ability to use fundamental knowledge to investigate new and emerging engineering and manufacturing technologies (UK Spec E1m)

Intellectual Skills

On completing the programme students should have:

B1 Knowledge and understanding of scientific principles and methodology necessary to underpin their education in mechanical and related engineering disciplines, to enable appreciation of scientific and engineering context and to support understanding of future developments and technologies(UK Spec US1)

B2 The ability to apply mathematical methods, tools and notations proficiently in the analysis and solution of mechanical engineering problems (UK Spec US2)

B3 Ability to apply and integrate knowledge and understanding of other engineering disciplines to support the study of mechanical and related engineering disciplines (UK Spec US3)

B4 An understanding of concepts from a range of areas including some outside engineering, and the ability to apply them effectively in mechanical engineering projects (UK Spec US3m)

B5 Ability to use fundamental knowledge to investigate new and emerging mechanical engineering and manufacturing technologies (UK Spec E1m)

B6 Ability to identify, classify and describe the performance of systems and mechanical components through the use of analytical methods and modelling techniques (UK Spec E2)

B7 An understanding of the capabilities of computer based models for solving problems in engineering, and the ability to assess the limitations of particular cases. (UK Spec E3m)

B8 Understanding of and ability to apply a systems approach to mechanical engineering problems (UK Spec E4)

B9 Investigate and define a problem and identify constraints including environmental and sustainability limitations, health and safety and risk assessment issues (UK Spec D1)
B10 Wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations (UK Spec D1m)
B11 Understand customer and user needs and the importance of considerations such as aesthetics (UK Spec D2)
B12 Ability to generate an innovative design for mechanical engineering systems, components or processes to fulfil new needs (UK Spec D4m)
B13 Ensure fitness for purpose for all aspects of mechanical engineering problems including production, operation, maintenance and disposal(UK Spec D5)
B14 Ability to generate ideas for new engineering products or projects and develop and evaluate a range of new solutions (UK Spec D5m)
B15 Manage the engineering design process and evaluate outcomes (UK Spec D6)
B16 The ability to make general evaluations of commercial risks through some understanding of the basis of such risks (UK Spec S1m)
B17 Limitations of management and business practices, and how these may be applied appropriately *to* strategic and tactical issues in mechanical engineering and manufacturing.
B18 Understanding of contexts in which mechanical engineering knowledge can be applied (ie operations and management, technology, product development) (UK Spec P3)
B19 Ability to apply mechanical engineering techniques taking account of a range of commercial and industrial constraints (UK Spec P8m)

Practical Skills

On completing the programme students should be able to:
C1 An understanding of the capabilities of computer based models for solving problems in mechanical engineering, and the ability to assess the limitations of particular cases. (UK Spec E3m)
C2 Ability to apply quantitative methods and computer software relevant to mechanical and related engineering disciplines, to solve engineering problems. (UK Spec E3)
C3 Identify and manage cost drivers in mechanical engineering and manufacturing (UK Spec D3)
C4 Awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues (UK Spec S4).
C5 Awareness of nature of intellectual property and contractual issues (UK Spec P5)
C6 Understanding of appropriate codes of practice and industry standards (UK Spec P6)
C7 Awareness of quality issues (UK Spec P7)
C8 Ability to work with technical uncertainty (UK Spec P8)
C9 Ability to apply mechanical engineering techniques taking account of a range of commercial and industrial constraints (UK Spec P8m)

Transferable/Key Skills

On completing the programme students should be able to:
D1 Understand customer and user needs and the importance of considerations such as aesthetics in mechanical and manufacturing engineering. (UK Spec D2)
D2 Use creativity to establish innovation in manufacturing and mechanical and related engineering disciplines. (UK Spec D4)
D3 A comprehensive knowledge and understanding of the role and limitations of ICT, and an awareness of developing technologies in ICT (UK Spec US4m)
D4 Understanding of the need for a high level of professional and ethical conduct in engineering (UK Spec S5)
D5 Mechanical engineering workshop and laboratory skills (UK Spec P2)
D6 Extensive knowledge and understanding of a wide range of engineering materials and components (UK Spec P2m)
D7 Understanding use of technical literature and other information sources (UK Spec P4)

Teaching and Learning Methods

Key elements of professional graduate employability are that employers need to be sure that

graduates are able to take individual responsibility for their own work without supervision, that they are capable of assimilating and organising complete information quickly and effectively and that they are self-learners, capable of keeping abreast of new developments without organisational support. Our approach to teaching and learning is designed to produce graduates who meet these criteria. From the outset, students will be expected to meet the basic professional requirement of taking responsibility for their own learning.

With engineering degrees lectures are extensively used to provide structure for each subject, to help to direct students' further reading and self study to convey how the underlying engineering science is applied to discipline specific problems. And to demonstrate approaches to problem-solving. Typically student self-study after lectures is supported by tutorial or problem classes, where advice is given on request to students who have issues arising from their application or understanding of the lecture material. Other types of classes include longer "hands-on" practical laboratory/workshop sessions, seminar/presentation activities, design project work and CAD/computer sessions where teamwork often features.

Over the common core course at Stages 1-2, there will be an average of around 20 contact hours per week, about half of which will be lectures, about a quarter tutorials supporting those lectures and about a quarter practical activities. During the course of Stage 1, to support the transition to University training, students must attend a regular weekly small group tutorial with their allocated Tutor and there are additional support classes for students having difficulties. Stage 2 features industrial contact in design and manufacturing and input from industry on CVs and interviews for a professional career in engineering.

At Stages 3 and 4 there is a greater expectation that students will manage their own learning, with seminar classes in which students present material they have researched themselves and independent work on assignments more prevalent. At Stage 3 students undertake a major 30 credit individual project related to the specialist stream they are following. The Accrediting Institutions place a high importance on this project which must be passed to get an Honours Degree.

At Stage 4 there is a major 50 credit team project related to the students' specialist stream in which the teams also have to demonstrate their project management skills.

Assessment Strategy

Professional practice in industry demands the ability to bring methods and data together, apply problem-solving skills and demonstrate understanding under time constraints. To reflect this, the major end-of-course examination remains a valid assessment tool and forms an important element in our assessment strategy. However, there are equally many disciplines and skills where it is restrictive or inappropriate and engineering degrees are noted for the breadth of assessment tools that are used to obtain a balanced measure of the student. Spot or phase tests (including MCA) and short assignments feature in the early stages to help students structure their study and revision towards the synoptic end-of-course examinations. Laboratory/workshop, design and computing work are all best assessed through realistic assignments, with many of these being team assignments and involving oral or poster, as well as written reporting. In later stages application of major engineering software features in most main technical subject areas.

At Stage 1 the balance of assessment between end-of-course examination and various forms of in-course assessment is about 50:50, changing to about 70:30 in Stage 2, as students develop. However, at Stages 3-4 the greater importance of self-study and of major project work shift the overall balance back again (depending on the specialisation stream followed).

Assessment of major project work at Stages 3-4 is particularly innovative. The traditional "mini PhD " thesis or dissertation with vivas has been replaced by a much broader and more challenging assessment more in line with the needs of industry and professional engineering, incorporating the maintaining of a contemporaneous logbook, a short report typical of business reports or technical journal papers, an oral presentation and a poster.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

There is a Faculty Foundation Year (120 credit Stage 0) for students not adequately qualified in Mathematics and/or science and/or English language to embark on Stage 1 (http://www.ncl.ac.uk/sage/undergrad/foundation/).

Stages 1 and 2 are a broadly-based course common to all BEng and MEng Honours streams with all modules compulsory. Students will study a broad range of applied mathematics, engineering sciences, design and manufacturing and management as well as IT skills The School wishes to warn all MEng candidates that its Accreditors require an overall 60% average at Stage 2 to progress onto MEng Stage 3. Students not reaching this standard will be transferred to BEng Stage 3.

At Stage 3 all students have a 30 credit degree major individual project. To proceed to an Honours degree it is necessary pass this project without condonation. Students follow a defined programme of modules appropriate to the specialist stream they have chosen.

At Stage 4, all MEng students have a 50 credit major team project in which they also have to demonstrate project management skills. To proceed to an MEng degree it is necessary to pass this project.

Key features of the programme (including what makes the programme distinctive)

The normal Undergraduate academic year is approximately 31 weeks full time from September – June divided into two semesters, with vacation breaks at Christmas/New Year and Easter. Engineering Honours students study 120 credits (1 credit ≡10 study hours, including timetabled contact hours and private study) in each stage or academic year. Students must complete one stage before proceeding to the next. Currently the only part-time study available is limited provision for the repetition of failed modules (only three attempts are permitted for any module).

The key feature is the structure of two common general years, followed by two years of specialisation. Whatever stream students enter on, providing they meet the Stage 2 MEng progression requirement they can choose any of the specialist streams, allowing them time to explore the different subjects before deciding on their specialisaton.

Programme regulations (link to on-line version)

http://www.ncl.ac.uk/regulations/programme/2007-2008/programme/h301_h390_hh31_hh37_hh36_hj3m_h391_h302_h3g1_h3n2_h300.php

13 Criteria for admission

Entry qualifications

Admission offers normally require UK GCE A-level grades of ABB/BBC for MEng/BEng (including mathematics and science but excluding General Studies) for Stage 1 admission (equivalent grades but without A-level Mathematics and/or science indicate Stage 0 Foundation Year entry). In addition, the University recruits candidates with a wide range of equivalent qualifications. A limited number of post-school qualifications with appropriate subjects and high grades may be considered for Direct Entry to Stage 2 or, exceptionally, Stage 3.

Admissions policy/selection tools

Engineering requires a wide range of attributes and abilities, so selection is not solely based on academic grades. Selectors seek evidence of motivation and commitment from the Personal Statement and Reference on UCAS forms and credible applicants are encouraged to attend for interview whenever practical. UK Engineering degrees are demanding and most have high drop-out rates. The School, therefore, may assess suitability by a 'biodata' questionnaire – a technique widely used in industrial recruitment at professional and managerial level

Non-standard Entry Requirements

The School is committed to widening access, particularly for mature, female, disabled and ethnic minority students as well as those from state schools and disadvantaged areas. Links exist with the Engineering Access course at Newcastle College and the University's "Partners" programme and there is a Faculty Foundation Year (Stage 0) for those with insufficient mathematics and/or science to enter Stage 1 directly. All UCAS forms, including late and summer applications, are considered but the School does not normally take candidates through UCAS Clearing.

Level of English Language capability
Applicants who are non-native speakers of English will usually be required to provide evidence of English Language proficiency equivalent to IELTS 6.0 or better. Direct Entrants to Stage 2 or Stage 3 may be required to achieve IELTS 6.5, but Stage 0 entry may be allowed with IELTS 5.5.

14 Support for Student Learning

Degree Programme Handbook
The School provides each student with the relevant Degree Programme Handbook (http://www.ncl.ac.uk/mech/undergrad/programme/contents.htm) which contains essential information concerning the content and operation of the programme, reference to the web-based School Student Handbook (http://www.ncl.ac.uk/mech/undergrad/mechanical/handbook/), together with further details of support facilities provided by the School and University and expectations of conduct placed on students.

Induction
The first week of Semester/Term 1 is an Induction Week which provides a series of introductory classes and activities designed to support new students and introduce personal transferable skills, for example:

- new and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. ;
- library information and other study skills;
- for Stage 0 – 1 new undergraduates, basic mathematics and basic mechanics diagnostic sessions (with students guided to remedial/revision mathematics classes if necessary);
- details of University Union and Athletics Union societies and social events;
- for all non-native speakers of English, compulsory English language proficiency testing (with students directed to remedial English classes as necessary); and
- for all non-UK students, the International Office offers an additional induction (see http://www.ncl.ac.uk/international/arrival/sept/index.phtml

Study skills support
Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects. At Stage 1 all students have regular weekly small-group sessions with their University Tutor and there are remedial mathematics (Semester 1) and mechanical engineering science (Semester 2) classes for students who need them. Help with academic writing is available from the Writing Centre.

Academic support
All students are assigned a personal University Tutor whose responsibility it is to advise students on both academic and non-academic issues. Details of the personal tutor system can be found at http://www.ncl.ac.uk/undergraduate/support/tutor.phtml. Each Stage has a Stage Manager and each degree a Degree Programme Director, who are also available for consultation. In the event of any difficulties in the student-tutor relationship, the Head of School may provide advice. The School provides an Industry Liaison tutor and additional female staff support for female students

(http://www.ncl.ac.uk/mech/undergrad/mechanical/handbook/contacts.html#tutor)

Pastoral support
All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. In addition the University offers a range of support services, including one-to-one counselling and guidance or group sessions/workshops on a range of topics, such as emotional issues eg. Stress and anxiety, student finance and budgeting, disability matters etc. There is specialist support available for students with dyslexia and mental health issues. Furthermore, the Union Society operates a Student Advice Centre, which can provide advocacy and support to students on a range of topics including housing, debt, legal issues etc.

Support for students with disabilities
The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies.

Learning resources
The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities.

All new students whose first language is not English are required to take an English Language Proficiency Test. This is administered by INTO Newcastle University Centre on behalf of Newcastle University. Where appropriate, in-sessional language training can be provided. The INTO Newcastle University Centre houses a range of resources which may be particularly appropriate for those interested in an Erasmus exchange.

15 Methods for evaluating and improving the quality and standards of teaching and learning

Module reviews
All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the School Teaching and Learning Committee and at the Board of Studies. Student opinion is sought at the Staff-Student Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

Programme reviews
The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee.

External Examiner reports
External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Teaching and Learning Committee. External Examiner reports are shared with institutional student representatives, through the Staff-Student Committee.

Student evaluations
All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Staff-Student Committee, and the Board of Studies. The National Student Survey is sent out every year to final-year undergraduate students, and consists of a set of questions seeking the students' views on the quality of the learning and teaching in their HEIs. With reference to the outcomes of the NSS and institutional student satisfaction surveys actions are taken at all appropriate levels by the institution.

Mechanisms for gaining student feedback
Feedback is channelled via the Staff-Student Committee and the Board of Studies.

Faculty and University Review Mechanisms
The programme is subject to the University's Internal Subject Review process. Every five years degree programmes in each subject area are subject to periodic review. This involves both the detailed consideration of a range of documentation, and a two-day review visit by a review team which includes an external subject specialist in addition to University and Faculty representatives. Following the review a report is produced, which forms the basis for a decision by University Teaching and Learning Committee on whether the programmes reviewed should be re-approved for a further five year period

Accreditation reports
It is policy that our Undergraduate Mechanical Engineering degrees are externally CEng accredited by the Institution of Mechanical Engineers and the Institution of Engineering Technology (formerly Institution of Electrical Engineers).

Re-accreditation was given by IMechE and IET in October 2006. Accreditation is for 5 years and the next re-accreditation visit is due in 2011.

Additional mechanisms
Previous QAA Reports
The University underwent Institutional Audit in March 2005
(http://www.qaa.ac.uk/reviews/reports/institutional/Newcastle05/main.asp)

Internal Subject Review
The School underwent Internal Subject Review in November 2005.

16 Regulation of assessment

Pass mark
The pass mark is 40

Course requirements
Progression is subject to the University's Undergraduate Progress Regulations and Undergraduate Examination Conventions. In summary, students must pass, or be deemed to have passed, 120 credits at each Stage. Limited compensation up to 40 credits and down to a mark of 35 is possible at each Stage and there are resit opportunities, with certain restrictions.

Weighting of stages
The marks from Stages 2, 3 and 4 will contribute to the final classification of the degree in the ratio 1:2:2.

Common Marking Scheme
The University employs a common marking scheme, which is specified in the Undergraduate Examination Conventions, namely

	Honours	**Non-honours**
<40	Fail	Failing
40-49	Third Class	Basic
50-59	Second Class, Second Division	Good
60-69	Second Class, First Division	Very Good
70+	First Class	Excellent

Role of the External Examiner
External Examiners, distinguished members of the subject community, are appointed by

Faculty Teaching and Learning Committee, after recommendation from the Board of Studies.
The External Examiners are expected to:

- See and approve examination papers
- Moderate examination and coursework marking
- Attend the Board of Examiners
- Report to the University on the standards of the programme

In addition, information relating to the programme is provided in:

The University Prospectus (see http://www.ncl.ac.uk/undergraduate/)

The School Brochure (contact enquiries@ncl.ac.uk)

The University Regulations (see http://www.ncl.ac.uk/calendar/university.regs/)

The Degree Programme Handbook
(http://www.ncl.ac.uk/mech/undergrad/programme/contents.htm)

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

Annex

Mapping of Intended Learning Outcomes onto Curriculum/Modules

Either

Intended Learning Outcome	Module codes (Comp/Core in Bold)
A1	**EEE1006, MEC1002, MEC1007, MEC1009 EEE2010, MEC2001, MEC2003, MEC2004, MEC2005, BUS3010, CME3001, CME3002, CME3015, MEC3003, MEC3005, MEC3006, MEC3008**
A2	**CME4002, EEE4007, ENG8009, MEC4002, MEC4003, MEC4006, MEC4095, MEC4096, MEC4097, MEC8009**
A3	**ENG1001, ENG2009, CME3015, CME3020, ENG3001, ENG3003, ENG3010, MEC3003,**
A4	**CME4017, ENG8001, ENG8002, ENG8004, ENG8009, EEE4007, MEC4002, MEC8009**
A5	**CME4017, CME8001, CME8012, CSC8006, CME8038, EEE8028, ENG4002, MEC4002, MEC4006, MEC4008, MEC4095, MEC4096, MEC4097**
A6	**MEC1004, EEE2010, MEC2003, MEC2004, MEC2005, CME3002, CME3015, MEC3003, MEC3005, MEC3006, MEC3008, MEC3096, MEC3098,**
A7	**MEC1008 MEC2006, CME3002, CME3015, CME3016, MEC3001, MEC3004, MEC3007, CME4002, CSC8006, ENG4002, MEC4004, MEC4005, MEC4006,**
A8	**MEC1006, BUS3010, ENG2001, MEC2002, MEC2006,**
A9	**MEC1006, BUS3010, ENG2001, MEC2001,**
A10	**CME8001, CME8012, ENG4002, NBS8036**
A11	**MEC2003 CME4002, CME4017, CME8012, CME8038, MEC4003, MEC4006,**
A12	**MEC1006, MEC1008, MEC2002, MEC2006, CME3015, ENG3010, MEC3002, MEC3006, MEC3007, MEC3096, MEC3098,**
A13	**CME4001, CME4002,CME4017, EEE8028, MEC4002, MEC4003, MEC4004, MEC4005, MEC4006, MEC4007, MEC4095, MEC4096, MEC4097,**
A14	**MEC1002, MEC2001, CME3001, CME3002, CME3016, MEC3002, MEC3004, ENG3010, CME4001, CME4002, EEE8028, MEC4004, MEC4005,**
A15	**CME4002, CME8038, EEE4007, ENG4002, MEC4002, MEC4003, MEC4008, MEC4095, MEC4096, MEC4097,**
B1	**EEE1006, MEC1002, MEC1007, MEC1009 EEE2010, MEC2001, MEC2003, MEC2004, MEC2005, BUS3010, CME3001, CME3002, CME3015, MEC3003, MEC3005, MEC3006, MEC3008**
B2	**ENG1001,**

	ENG2009, **CME3015, CME3020, ENG3001, ENG3003, ENG3010,** **MEC3003,**
B3	**EEE1006, MEC1006,** **EEE2010, MEC2002,** **BUS2014, CME3002, CME3016, ENG3007, ENG3009,** **ENG3010, MEC3007, MEC3096, MEC3098,**
B4	**CME4017, CME8001, CME8012, CSC8006, CME8038,** **EEE8028, ENG4002, MEC4002, MEC4006, MEC4008,** **MEC4095, MEC4096, MEC4097**
B5	**CME4002, CME8038, EEE4007, ENG4002, MEC4002,** **MEC4003, MEC4008, MEC4095, MEC4096, MEC4097,**
B6	**MEC1004,** **EEE2010, MEC2003, MEC2004, MEC2005,** **BUS2014, CME3002, MEC3001, MEC3002, MEC3005,** **MEC3006,**
B7	**CME3020, ENG3001, MEC3003, MEC3004, MEC3005,** **MEC3006, MEC3008** **CME4017, ENG8001, EEE4007, MEC4003, MEC4007,**
B8	**ME2003, MEC2004,** **CME3015, ENG3009, MEC3001, MEC3004, MEC3007,** **MEC3008,** **CME4017, EEE4007, ENG4002, MEC4002, MEC4003,** **MEC4006, MEC4007,**
B9	**MEC1008,** **MEC2002, MEC2006,** **CME3002, CME3015, CME3016, MEC3001, MEC3004,** **MEC3007, MEC3096, MEC3098**
B10	**MEC3001, MEC3004, MEC3007,** **CME4002, CSC8006, ENG4002, MEC4004, MEC4005,** **MEC4095, MEC4096, MEC4097,**
B11	**MEC1008** **MEC2006,** **CME3002, CME3015, CME3016, MEC3001, MEC3004,** **MEC3007,** **CME4002, CSC8006, ENG4002, MEC4004, MEC4005,** **MEC4006,**
B12	**CME4002, CSC8006, ENG4002, MEC4004, MEC4005,**
B13	**MEC2006,** **CME3002, CME3015, CME3016, MEC3001, MEC3004,** **MEC3007,**
B14	**CME4002, CSC8006, ENG4002, MEC4004, MEC4005,**
B15	**MEC2006,** **MEC3001, MEC3004,**
B16	**CME4002, CME4017, CME8012, ENG4002, NBS8036,**
B17	**CME8001, CME8012, ENG4002, NBS8036**
B18	**CME3002, CME3016, ENG3007, ENG3009, MEC3001,** **MEC3006, MEC3007, MEC3096, MEC3098,** **CME4001, CME4002, CME8038, ENG4002, EEE8028,** **MEC4002, MEC4003, ME4004, MEC4006, MEC4007,** **MEC4008, MEC4095, MEC4096, MEC4097,**
B19	**CME4017, CME8001, CME8012, CME8038, ENG4002,** **MEC4002, MEC4004, MEC4095, MEC4096, MEC4097**
C1	**CME3020, ENG3001, MEC3003, MEC3004, MEC3005,** **MEC3006, MEC3008** **CME4017, ENG8001, EEE4007, MEC4003, MEC4007,**
C2	**MEC1001** **MEC2003, MEC2004, MEC2005** **CME3020, ENG3001, MEC3003, MEC3004, MEC3005,**

	MEC3006, MEC3008,
C3	**MEC1006, MEC1008,** **MEC2002, MEC2006,** **CME3002, CME3015, CME3016, ENG3007, MEC3001, MEC3004, MEC3005,** **CME4001, CME4002, ENG4002, MEC4003, MEC4004, MEC4005, MEC4008,**
C4	**ENG2001,** **BUS3010, CME4017, CME8001, CME8012, CME8038, MEC4003,**
C5	**BUS3010, ENG2001, NBS8036,**
C6	**MEC1008,** **MEC2006,** **MEC3004, MEC3096, MEC3098,** **ENG4002, MEC4004, MEC4095, MEC4096, MEC4097,**
C7	**ENG2001, MEC2002, MEC2006,** **MEC3096, MEC3098,** **MEC4095, MEC4096, MEC4097**
C8	**MEC1004, MEC1008,** **MEC2003, MEC2006,** **MEC3096, MEC3098**
C9	**CME4017, CME8001, CME8012, CME8038, ENG4002,** **MEC4002, MEC4004, MEC4095, MEC4096, MEC4097**
D1	**MEC1008** **MEC2006,** **CME3002, CME3015, CME3016, MEC3001, MEC3004, MEC3007,** **CME4002, CSC8006, ENG4002, MEC4004, MEC4005, MEC4006,**
D2	**MEC205,** **MEC3004, MEC3005,**
D3	**BUS2014, CSC8006, EEE8028, ENG3007, ENG3009,** **MEC3003, MEC3005,** **MEC4007,**
D4	**ENG2001,** **BUS3010, MEC3096, MEC3098,** **MEC4095, MEC4096, MEC4097**
D5	**EEE1006, MEC1002, MEC1006, MEC1007, MEC1008, MEC1009** **EEE2010, MEC2002, MEC2003, MEC2005,**
D6	**MEC1002,** **MEC2001,** **CME3001, CME3002, CME3016, MEC3002, MEC3004, ENG3010,** **CME4001, CME4002, EEE8028, MEC4004, MEC4005,**
D7	**MEC1004,** **ENG2001,** **BUS3010, MEC3096, MEC3098,** **MEC4095, MEC4096, MEC4097**

Or

Module	**Type**	**A**	**B**	**C**	**D**
STAGE 1					
EEE1006	Comp	1	1, 3		5
ENG1001	Comp	3	2		
MEC1001	Comp			2	
MEC1002	Comp				5, 6
MEC1004	Comp	6	6	8	7
MEC1006	Comp	8,9,12	3	3	5
MEC1007	Comp	1	1		5
MEC1008	Comp	7, 12	9, 11	3,6,8	1,5
MEC1009	Comp	1	1		5
STAGE 2					
EEE2010	Comp	1,6	1,3,6		5
ENG2009	Comp	3	2		
MEC2001	Comp	1,9,14	1		6
MEC2002	Comp	8,12	3,9	3,7	5
MEC2003	Comp	1, 6, 11	1,6	2,8	5
MEC2004	Comp	1,6	1,6,8	2	
MEC2005	Comp	1,6	1,6	2	5
MEC2006	Comp	7,8,12	9,11,13,15	3,6,7,8	1
ENG2001	Comp	8,9		4,5,7	4,7
STAGE 3					
Mechanical Engineering -H301					
MEC3098	Core	6,12	3,9,18	6,7,8	4,7
BUS3010	Compulsory	1,8,9	1	4,5	4,7
CME3002	Compulsory	1,6,7,14	1,3,6,9,11,13	3	1,6
ENG3004	Compulsory				
ENG3007	Compulsory		3,18	3	3
MEC3005	Compulsory	1,6	1,,6,7	1,2,3	2,3
MEC3006	Compulsory	1,6,12	1,6,7,18	1,2	
MEC3008	Compulsory	1,6	1,7,8	1,2	
Mechanical and Automotive Engineering – H390					
MEC3096	Core	6,12	3,9,18	6,7,8	4,7
BUS3030	Compulsory				
CME3002	Compulsory	1,6,7,14	1,3,6,9,11,13	3	1,6
ENG3003	Compulsory	3,2			
MEC3003	Compulsory	1,3,6	1,2,7	1,2	3
MEC3005	Compulsory	1,6	1,,6,7	1,2,3	2,3
MEC3006	Compulsory	1,6,12	1,6,7,18	1,2	
MEC3008	Compulsory	1,6	1,7,8	1,2	
Mechanical and Design Engineering – HH31					
MEC3096	Core	6,12	3,9,18	6,7,8	4,7
BUS3030	Compulsory				
CME3002	Compulsory	1,6,7,14	1,3,6,9,11,13	3	1,6
CME3015	Compulsory	1,3,6,7,12	1,2,8,9,11,13	3	1
ENG3001	Compulsory	3	2,7	1,2	
MEC3002	Compulsory	12,14	6		6
MEC3004	Compulsory	7,14	7,8,9,10,11, 13,15	1,2,3,6	1,2,6
MEC3005	Compulsory				
Mechanical and Railway Engineering – H391					

MEC3096	Core	6,12	3,9,18	6,7,8	4,7
BUS3030	Compulsory				
CME3002	Compulsory	1,6,7,14	1,3,6,9,11,13	3	1,6
CME3015	Compulsory	1,3,6,7,12	1,2,8,9,11,13	3	1
ENG3003	Compulsory	3,2			
MEC3002	Compulsory	12,14	6		6
MEC3005	Compulsory	1,6	1,,6,7	1,2,3	2,3
MEC3007	Compulsory	7,12	3,8,9,10,11, 13,18		
Mechanical Engineering with Mathematical Modelling – H3G1					
MEC3098	Core	6,12	3,9,18	6,7,8	4,7
BUS3030	Compulsory				
CME3015	Compulsory	1,3,6,7,12	1,2,8,9,11,13	3	1
CME3020	Compulsory	3	2,7	1,2	
ENG3001	Compulsory	3	2,7	1,2	
ENG3003	Compulsory	3,2			
ENG3004	Compulsory				
MEC3003	Compulsory	1,3,6	1,2,7	1,2	3
MEC3005	Compulsory	1,6	1,,6,7	1,2,3	2,3
MEC3008	Compulsory	1,6	1,7,8	1,2	
Mechanical Engineering with Management – H3N2					
MEC3098	Core	6,12	3,9,18	6,7,8	4,7
BUS3010	Compulsory	1,8,9	1	4,5	4,7
BUS2014	Compulsory		3,6		3
CME3015	Compulsory	1,3,6,7,12	1,2,8,9,11,13	3	1
CME3020	Compulsory	3	2,7	1,2	
ENG3001	Compulsory	3	2,7	1,2	
ENG3003	Compulsory	3,2			
ENG3007	Compulsory		3,18	3	3
MEC3004	Compulsory	7,14	7,8,9,10,11, 13,15	1,2,3,6	1,2,6
Mechanical Engineering and Mechatronics – HH36					
MEC3096	Core	6,12	3,9,18	6,7,8	4,7
BUS3030	Compulsory				
EEE3009	Compulsory				
EEE3010	Compulsory				
CME3002	Compulsory	1,6,7,14	1,3,6,9,11,13	3	1,6
MEC3001	Compulsory	7	6,8,9,10,11,1 3,15,18	3	1
MEC3002	Compulsory	12,14	6		6
MEC3008	Compulsory	1,6	1,7,8	1,2	
Mechanical and Manufacturing Engineering – HH37					
MEC3096	Core	6,12	3,9,18	6,7,8	4,7
BUS3010	Compulsory	1,8,9	1	4,5	4,7
CME3002	Compulsory	1,6,7,14	1,3,6,9,11,13	3	1,6
CME3020	Compulsory	3	2,7	1,2	
ENG3007	Compulsory		3,18	3	3
MEC3001	Compulsory	7	6,8,9,10,11,1 3,15,18	3	1
MEC3002	Compulsory	12,14	6		6
MEC3004	Compulsory	7,14	7,8,9,10,11, 13,15	1,2,3,6	1,2,6
Mechanical and Materials Engineering – HJ3M					

MEC3096	Core	6,12	3,9,18	6,7,8	4,7
BUS3030	Compulsory				
CME3001	Compulsory	1,14	1		6
CME3002	Compulsory	1,6,7,14	1,3,6,9,11,13	3	1,6
CME3015	Compulsory	1,3,6,7,12	1,2,8,9,11,13	3	1
CME3016	Compulsory	7,14	3,9,11,13,18	3	1,6
MEC3004	Compulsory	7,14	7,8,9,10,11, 13,15	1,2,3,6	1,2,6
MEC3005	Compulsory	1,6	1,,6,7	1,2,3	2,3
STAGE 4					
Mechanical Engineering – H301					
MEC4096	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4001	Compulsory	13,14	18	3	6
CME4017	Compulsory	4,5,11,13	4,7,8,16,19	1,4,9	
MEC4002	Compulsory	2,4,5,13,15	4,5,8,18,19	9	
MEC4003	Compulsory	2,11,13,15	5,7,8,18	1,3,4	
MEC4004	Compulsory	7,13,14	10,11,12,14, 19	3,6,9	1,6
Mechanical and Automotive Engineering – H390					
MEC4096	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4001	Compulsory	13,14	18	3	
CME8012	Compulsory	5,10,11	4,16,17,19	4,9	
MEC4003	Compulsory	2,11,13,15	5,7,8,18	1,3,4	
MEC4004	Compulsory	7,13,14	10,11,12,14, 19	3,6,9	1,6
MEC4008	Compulsory	5,15	4,5,18	3	
Mechanical and Design Engineering – HH31					
MEC4096	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4001	Compulsory	13,14	18	3	
CME4002	Compulsory	2,7,11,13,14	5,10,11,12, 14,16,18	3	1,6
ENG4002	Compulsory	5,7,10,15,	4,5,8,10,11, 12,14,16,17, 18,19	3,6,9	1
MEC4004	Compulsory	7,13,14	10,11,12,14, 19	3,6,9	1,6
MEC4008	Compulsory	5,15	4,5,18	3	
Mechanical and Railway Engineering – H391					
MEC4096	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4001	Compulsory	13,14	18	3	
CME4017	Compulsory	4,5,11,13	4,7,8,16,19	1,4,9	
MEC4004	Compulsory	7,13,14	10,11,12,14, 19	3,6,9	1,6
MEC4006	Compulsory	2,5,7,11,13	4,8,11,18		1
MEC4008	Compulsory	5,15	4,5,18	3	
Mechanical Engineering with Mathematical Modelling – H3G1					
MEC4096	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4018	Compulsory				
CME4017	Compulsory	4,5,11,13	4,7,8,16,19	1,4,9	
ENG8009	Compulsory	2,4			
ENG8001	Compulsory	4	7	1	
ENG8004	Compulsory	4			
MEC4002	Compulsory	5,7,10,15,	4,5,8,10,11,	3,6,9	1

			12,14,16,17, 18,19		
Mechanical Engineering with Management – H3N2					
MEC4096	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4018	Compulsory				
CME4017	Compulsory	4,5,11,13	4,7,8,16,19	1,4,9	
CME8001	Compulsory	5,10	4,17,19	4,9	
CSC8006	Compulsory	5,7	4,10,11,12, 14		1,3
ENG4002	Compulsory	5,7,10,15,	4,5,8,10,11, 12,14,16,17, 18,19	3,6,9	1
NBS8036	Compulsory	10	16, 17	5	
Mechanical Engineering and Mechatronics – HH36					
MEC4095	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME8012	Compulsory	5,10,11	4,16,17,19	4,9	
EEE8028	Compulsory	5,13,14	4,18		3,6
EEE4007	Compulsory	2,4,15	5,7,8	1	
EEE8005	Compulsory				
MEC4005	Compulsory	7,13,14	10,11,12,14, 19	3,6,9	1,6
MEC4007	Compulsory	15	7,8,18	1,3	
Mechanical and Manufacturing Engineering – HH37					
MEC4097	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4001	Compulsory	13,14	18	3	
CME4002	Compulsory	2,7,11,13,14	5,10,11,12, 14,16,18	3	1,6
ENG4002	Compulsory				
MEC4007	Compulsory	15	7,8,18	1,3	
MEC4008	Compulsory	5,15	4,5,18	3	
Mechanical and Materials Engineering – HJ3M					
MEC4096	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4001	Compulsory	13,14	18	3	
CME4002	Compulsory	2,7,11,13,14	5,10,11,12, 14,16,18	3	1,6
CME8012	Compulsory	5,10,11	4,16,17,19	4,9	
CME8038	Compulsory	5,11,15	4,5,18,19	4,9	
ENG8002	Compulsory	4			
MEC4008	Compulsory	5,15	4,5,18	3	
Mechanical Engineering (Europe) – H302					
MEC4096	Core	2,5,13,15	4,5,10,18,19	6,7,9	4,7
CME4001	Compulsory	13,14	18	3	
CME8012	Compulsory	5,10,11	4,16,17,19	4,9	
MEC4007	Compulsory	15	7,8,18	1,3	
MEC4008	Compulsory	5,15	4,5,18	3	
MEC8009	Compulsory	2,4			