PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	MEng Hons
4	**Programme Title**	Chemical Engineering
5	**UCAS/Programme Code**	H813, H815 (with a year in industry) H830 (with Process Control), H831 (with Bioprocess Engineering), HH82 (with Sustainable Engineering), H833 (with Intensified Processing),
6	**Programme Accreditation**	IChemE, Energy Institute, InstMC
7	**QAA Subject Benchmark(s)**	Engineering
8	**FHEQ Level**	7
9	**Date written/revised**	May 2012

10 Programme Aims

The aim of the Degree programme is to produce graduates who have a coherent understanding of chemical engineering, combining a sound theoretical grasp of the subject with practical experience and an awareness of their responsibilities to society and the environment. Graduates should be capable of becoming professional chemical and process engineers in Industry or of following a postgraduate route into a research, industrial or academic career. In addition to a wide understanding of chemical and process engineering, the MEng programme is designed to provide scope for students to develop their understanding in both breadth and depth. In order to meet this aim, the Degree programme has the following objectives:-

1) To recruit good students from a range of geographical, social and academic backgrounds.
2) To produce graduates who have vision and the ability to address the challenges posed by society through the deployment of the skills and knowledge gained during their Degree course.
3) To equip students with a knowledge and understanding of the subject, including the core material specified by the accrediting professional institutions (The Institution of Chemical Engineers, Institute of Measurement and Control and the Energy Institute)
4) To provide opportunities for students to acquire further knowledge, both in breadth and depth, and to specialise according to their own interests as they develop over the duration of the programme.
5) To enable students to eventually meet the requirements of the accrediting Institutions for Chartered Membership
6) To equip students with appropriate practical skills in information processing, data analysis, problem solving, teamwork, and communication skills.
7) To encourage students to develop responsible attitudes towards the needs of society and the environment in the application of their engineering and economic knowledge and to ensure that they have particular regard for the importance of safety in their industrial life.
8) To encourage students to develop appropriate attitudes towards their own future professional development.
9) To provide an environment within the School such that students enjoy the University learning experience sufficiently to want to maintain contact with the School in its future recruiting, teaching, research and social activities.
10) To provide a programme of study which meets the FHEQ level 7 and which also takes account of the subject benchmarks in QAA Engineering and UK-Spec

professional standards.

11 Learning Outcomes

The programme provides opportunities for students to develop, integrate, practise 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.

Knowledge and Understanding

On completing the programme students should have appropriate knowledge and understanding of:

A1 Background Mathematics, Statistics and Chemistry that are relevant to Chemical and Process (C&P) Engineering.

A2 The fundamental concepts, principles and theories of C&P Engineering.

A3 Business and management techniques relevant to C&P engineering and Chemical Engineers.

A4 The role of chemical engineers in society and the constraints within which their engineering judgement will be exercised, including the professional and ethical responsibilities of chemical engineers.

A5 The environmental and safety issues that affect C&P engineering and the issues associated with sustainable engineering solutions.

A6 Conceptual, elemental and detailed design of processes and process plant.

A7 Safe operation of processes and plant, including the use of IT for design, control and management.

A8 Codes of practice, design, the assessment of safety and environmental risks, and the legislative framework for safety.

A9 Extended knowledge and understanding of the essential facts, concepts, principles and theories of C&P Engineering.

Learning and Teaching Methods

Knowledge and understanding is primarily imparted through a combination of lectures, tutorials, example classes, case studies, laboratory experiments, coursework and projects in all Stages. In some cases, the formal lectures are supplemented by computer assisted learning (CAL). A number of visiting lecturers and professors contribute to A3, A5, A6, A7, A8 and A9. Teaching is enhanced by the provision of challenging open-ended tasks. Throughout the course, learners are encouraged to undertake independent reading to deepen, supplement and consolidate learning and teaching and to broaden their individual knowledge and understanding of the subject. In the final two years students are given guidance and directed to engineering literature related to their design and research projects. Feedback on essays, laboratory and project reports allows students to refine their presentation techniques in these areas, and to assess the level of their knowledge and understanding. By exposure to industrial practice in stage 3 (H815), knowledge and understanding of A1-A9 is broadened.

Assessment Strategy

Testing the knowledge base is through a combination of unseen written examinations and assessed coursework in the form of laboratory experiment write-ups, coursework reports, project reports and presentations. The proportion of in-course and written examination towards the final module assessment is usually 25/75 although this can vary as appropriate for the module and level of study.

Intellectual Skills

On completing the programme students should be able to:

B1 Select and apply appropriate scientific principles, mathematical methods and computer based methods for modelling and analysing engineering problems
B2 Critically analyse experimental or computational results and determine their strength and validity.
B3 Critically analyse systems, processes and components requiring engineering solutions and to produce a conceptual or elemental design to a specification.
B4 Use the scientific literature effectively and to search for information to develop concepts.
B5 Produce a full design specification for a process or process plant.
B6 Identify the required cost, quality, safety, reliability, appearance, fitness for purpose and environmental impact of the application of the design and assess commercial risk.
B7 Project manage a task.
B8 Determine the criteria for evaluating a design solution and evaluate an outcome of the design against the original specification
B9 Investigate specific aspects of design in depth
B10 Carry out a research programme in a chosen area

Learning and Teaching Methods

Subject-specific/professional intellectual skills are developed through laboratory experiments and research work (B1-B4, B10). Case study/design exercises throughout Stages 1, 2, 3 and 4 develop B5-B9. Lectures, tutorials, case studies and seminars in specific modules are used to develop skills B1–B10. From the first year, students are required, after appropriate guidance and with proper resources provided through Blackboard VLE, to search the literature for information and submit all written work in an appropriate scientific and engineering format so that B1-B4 are thoroughly integrated into all submitted work by the final two Stages. Students are encouraged to develop their professional and practical skills by monitored attendance at laboratory sessions during all stages of their studies. Feedback on all submitted work particularly enhances learning of skills B5-B10, culminating in the Stage 3 Design and Stage 4 Research projects. Some projects are carried out in small groups (4-5 students) and some individually. All are monitored by an academic supervisor and in some cases an industrial supervisor provides additional support. During the year in industry (H815) all the intellectual skills, are developed by the projects undertaken whilst working for a company.

Assessment Strategy

Practical skills are assessed through laboratory experiment write-ups, coursework and project reports, presentations, group oral discussions, and unseen written examinations. Skills B5-B10 form a major part of the assessment of project work, especially the major design project and the research project.

Practical Skills

On completing the programme students should be able to:

C1 Plan, conduct and report a programme of novel investigative work.
C2 Analyse and solve engineering problems.
C3 Design a process or process plant to meet a need.
C4 Be creative in the solution of problems and in the development of designs.
C5 Critically evaluate designs and make improvements.
C6 Integrate and evaluate information and data from a variety of sources.
C7 Take a holistic approach to solving problems and designing systems, applying professional judgements to balance risks, costs, benefits, safety, reliability, aesthetics and environmental impact.
C8 Make engineering sketches and use computational tools and packages.
C9 Apply mathematical skills through modelling and analysis.

Learning and Teaching Methods

Analysis and problem solving skills are developed through example classes, tutorials, coursework, project work and the projects undertaken whilst working in industry (H815). Experimental, research and design skills are developed through coursework activities, laboratory experiments, and research and design projects. Students in all years are encouraged, following appropriate guidance, to plan and carry out their investigative work and analyse the experimental data in critical manner. Feedback provided on all submitted work provides opportunities for students to improve their skills. In particular, project work provides the opportunity to develop skills C1-C9.

Assessment Strategy

Analysis and problem solving skills are assessed through unseen written examinations and coursework. Experimental, research and design skills are assessed through laboratory experiment write-ups, coursework reports and project reports, presentations and unseen written examinations. Creative and design skills are assessed through design project reports and design presentations.

Transferable/Key Skills

On completing the programme students should be able to:

D1 Communicate effectively (orally and in writing).
D2 Prepare technical reports, specifications and give technical presentations.
D3 Work as a member of a team (an interdisciplinary team where appropriate).
D4 Develop ideas and solutions to engineering problems.
D5 Use information and communications technology.
D6 Manage resources and time, plan, organise and prioritise work effectively to meet deadlines.
D7 Learn independently in familiar and unfamiliar situations with open-mindedness and in the spirit of critical enquiry.
D8 Learn effectively for the purpose of continuing professional development and in a wider context throughout their career.

Learning and Teaching Methods

Transferable skills are developed through the learning and teaching programme outlined above (and in section 11). Basic communication skills D1 are acquired within an introductory module (Principles of Chemical Engineering) as well as through individual and team projects throughout other modules and the case study/design projects in each Stage. These are then developed through feedback on written reports and oral presentations made as part of coursework assignments. Skills D1, D2 are formally taught in specific skills modules (e.g. Principles of Chemical Engineering, Safety & Engineering Practice) and students obtain feedback to enhance their learning as parts of those modules. Additionally, transferable skills are also applied in many subject-specific modules with students required to find information and give oral and/or written presentations throughout all years of study. Deadlines for submission of coursework are enforced in compliance with University regulations, encouraging students to develop D6 and this is supported by guidance provided during Induction week at each Stage of the programme. Design problems at each stage provide an opportunity to develop skills D3-D7.

Students in industry receive training in using computers, report writing and presentations. Whilst working in a company they also have numerous opportunities to practice their key skills and receive feedback

Assessment Strategy

Transferable and communication skills are assessed through coursework reports, presentations and oral examinations in a number of compulsory and optional modules throughout all stages. The assessment of Stage 3 and Stage 4 major projects includes assessment of key skills.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

Design and case study projects provide a central theme to each Stage. As well as technical competence, these offer a wide range of learning outcomes, generally including elements of new knowledge, a broad range of intellectual activities and significant Professional and Transferable skills. A substantial mathematical base is provided in each Stage, together with a range of modules providing core C&P engineering knowledge. The more analytical subjects also address intellectual abilities and transferable skills. Laboratory classes cover both practical and transferable skills. Stage 1 provides foundations of knowledge and understanding of fundamental C&P engineering issues such as energy and material balances, heat transfer and fluid properties. Foundations of chemistry/biochemistry, mathematics and computer applications are also provided. Safety and environmental impact are developed as a formal topic of study. Links between subject areas are strengthened by a number of case studies/design project problems drawing on student's understanding, developing problem solving further and requiring practical skill application.

Stage 2 continues the approach established in Stage 1, with design and its wide range of outcomes remaining central to the course. Mathematical knowledge is developed for higher level study. Technical modules extend both analytical and qualitative knowledge of C&P engineering science.

Stage 3 contains a major group process plant design project, as befits the candidates' greater maturity and independence. The project addresses many learning outcomes including acquisition of new knowledge, intellectual abilities, practical skills and transferable skills. It is set as an open-ended problem, allowing for creative development and full application of acquired skills. Modules for a range of technical C&P Engineering studies develop understanding towards graduate level. There is also a strong management strand to this Stage in Process Business Operations.

Stage 3 in industry contains a design project, as befits the candidates' greater maturity and independence. The project addresses many learning outcomes including acquisition of new knowledge, intellectual abilities, practical skills and transferable skills. It is set as an open-ended problem, allowing for creative development and full application of acquired skills. Two distance learning modules develop understanding towards graduate level. There is also a strong self learning strand to this Stage in CME8110 Chemical Engineering Knowledge, in which the students summarise the C&P Engineering knowledge they have learnt during their year in industry.

Stage 4 is designed to complete a candidates' academic development towards Chartered Engineering status, which is endorsed by the IChemE, InstMC and Energy Institute accreditation of the programmes. All students receive instruction in research methodology and then undertake an individual research project which enables them to demonstrate their full and final achievement of the learning outcomes for the course. Students also undertake an individual, in-depth study of a facet of a design or a design process, usually based on their Stage 3 Design Project. Technical modules, which are predominantly quantitative, develop scientific knowledge to levels consistent with the students' future professional careers.

Stage 4 students who have taken Stage 3 in industry take additional technical C&P Engineering modules to complete their understanding of C&P Engineering.

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

The Undergraduate year is 31 weeks, arranged in three terms and currently divided into two Semesters and including an Induction week at the beginning of Semester 1.

The programme normally lasts four years. Every Honours student studies 120 credits in each Stage, resulting in MEng candidates completing 480 credits. These credits are a mixture of compulsory and optional modules with some modules designated "core" and having

implications for student progress.

Progression from Stage 1 to Stage 2 depends upon student achieving at least 40% for all core module marks and at least a 40% overall Stage average. Limited compensation of marks of at least 35% is permitted for non-core module. Further details are contained in the University Examination Conventions.

Progression from Stage 2 to Stage 3 of this programme requires that students achieve an overall performance in Stage 2 resulting in a 60% Stage average and do not fail any modules at first attempt. MEng candidates who do not achieve this level are required to transfer to Stage 3 of the corresponding BEng programme (H810). Students may progress from Stage 3 BEng programme into Stage 4 MEng if they achieve a stage average of 60% and fail no modules at first attempt.

Students may choose electives during Stage 4 to suit their interests and capabilities. However, to complete the programme for H830, H831, HH82, H833, certain electives will become compulsory and the research project will be chosen so that they complement the theme of the MEng specialisation.

H815 provides the students with the option of doing stage 3 in industry. During the year in industry a student will complete technical Chemical Engineering modules and a substantial design project equivalent to that taken by Stage 3 students at the University.

There is a Faculty Foundation Year (H816) for candidates not adequately qualified to embark on Stage 1 of Degree Programme.

Particular features of the programme are:

- High content of laboratory-based practical work
- High content of design-based work in teams, and individually
- Broadening and deepening of knowledge and skills
- An open-ended research project in Stage 4 that often contributes to the School's research programme
- An in-depth advanced study of a facet of a design or design process

Programme regulations (link to on-line version)

http://www.ncl.ac.uk/regulations/docs/

13 Criteria for admission

Entry qualifications
The full entry policy is stated on page 12 of the Chemical Engineering and Advanced Materials Undergraduate Study Brochure.

All applicants are considered individually on the basis of past academic performance and, in particular, predicted achievement.

The offer is typically - AAB at 'A' level including Mathematics and Chemistry and preferably Physics and/or Biology but excluding General Studies and Critical Thinking. Chemistry accepted at AS level (grade A or B) if offered in combination with A level Mathematics and Physics. GCSE Physics or Double Award Science (minimum Grade B) required if Physics not offered at A level.

The Foundation Year is suitable for applicants who do not have Chemistry and/or Maths at A-level. The standard requirement for BEng with Foundation Year is
AAB-ABB at 'A' level in any subjects excluding General Studies and Critical Thinking. GCSE grade B in Mathematics and Chemistry (or Dual Award Science) required if not offered at A or AS level.

Admissions policy/selection tools
Offers are made on the basis of applicants' UCAS forms after which they are invited to a post application open day (PAOD). During the course of the PAOD applicants have an informal meeting with a member of academic staff.

Non-standard Entry Requirements
Students who enter on the BEng stream may transfer to the MEng stream at the end of Stage 2, or Stage 3 if they achieve an overall Stage average of 60% and fail no modules at first attempt.

Students are eligible for direct entry into Stage 2 if they hold an appropriate Diploma in Chemical Engineering with suitable grades, typically an overall average of approx 60% or equivalent. Direct entry to Stage 2 is also possible through accreditation of prior learning (APL). All such applications are considered on an individual basis: direct entry is only offered if there is a sufficient academic basis for confidence of successful completion of Stage 2.

Additional Requirements

Level of English Language capability
We comply with the standard University English Language requirement.

14 Support for Student Learning

The Student Services portal provides links to key services and other information and is available at: http://www.ncl.ac.uk/students/

Induction
During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University's principle support services and general information about the School and their programme, as described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. The International Office offers an additional induction programme for overseas students.

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.

Numeracy support is available through Maths Aid and help with academic writing is available from the Writing Centre (further information is available from the Robinson Library).

Academic support
The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff-Student Committee, and/or at the Board of Studies.

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 learning and teaching

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 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 FLTSEC.
Programme reviews
The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to FLTSEC. The FLTSEC takes an overview of all programmes within the Faculty and reports any Faculty or institutional issues to the ULTSEC.

External Examiner reports
External Examiner reports are considered by the Board of Studies. The Board responds to these reports through FLTSEC. 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 students' views on the quality of the learning and teaching. The results from student surveys are considered as part of the Annual Monitoring and Review of the programme and any arising actions are captured at programme and School / institutional level and reported to the appropriate body.

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 ULTSEC on whether the programmes reviewed should be re-approved for a further five year period.

Accreditation reports

Additional mechanisms
All staff are subject to periodic peer observation of their teaching. Any issues arising are dealt with by the School Learning and Teaching Committee

16 Regulation of assessment

Pass mark

The pass mark for Stages 1 -3 is 40 (Undergraduate Programmes)

The pass mark for level 7 modules is 50. For the sake of clarification, this represents a higher standard of work than the undergraduate (levels 4-6) pass mark of 40. This rule applies to level 7 modules taken as part of an Undergraduate Degree.

Programme 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 Stages 1-3 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
The weighting of marks contributing to the Degree for Stages 2:3:4 is 1:2:2

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

	Summary description applicable to level 7 Degree Classification (DC) Modules	**Summary description applicable Degree Classification (DC) Modules *below level 7***	**Summary description applicable to modules *not used for degree classification***
0-39	Fail	Fail	Failing
40-49	Fail	Third Class	Basic
50-59	Second Class, Second Division	Second Class, Second Division	Good
60-69	Second Class, First Division	Second Class, First Division	Very Good
70-100	First Class	First Class	Excellent

Role of the External Examiner
An External Examiner, a distinguished member of the subject community, is appointed by FLTSEC, after recommendation from the Board of Studies. The External Examiner is 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/ or http://www.ncl.ac.uk/postgraduate/

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

The University Regulations (see http://www.ncl.ac.uk/regulations/docs/

The Degree Programme Handbook

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

		Intended Learning Outcomes			
Module	**Type**	**A**	**B**	**C**	**D**
CME1020	Compulsory	1,2	1,2,4	1,2,6	1,2,4,5,6,7,8
CME1021	Compulsory	2	1,2,4	1,2,6	1,2,4,5,6,7,8
CME1023	Compulsory	2,6	2,4	1,2,6	1,2,4,5,6,7,8
CME1024	Compulsory	1,2,6	1,2	1,4,6	1,2,4,5,6,7,8
CME1025	Compulsory	1,2,3,4,5,6,7,8	1,2,3,4,5,6,8	1,2,3,4,5,6	1,2,3,4,5,6,7,8
ENG1001	Compulsory	1	1	2,6	2,5,6,7,8
CME2016	Compulsory	1,2,6,7	1,2	1,2,6	1,2,4,5,6,7,8
CME2021	Compulsory	2,3,4,5,6,7,8	1,2,3,4,5,6,7,8	1,2,3,4,5,6	1,2,3,4,5,6,7,8
CME2022	Compulsory	2,6	1,2	2,6	1,2,4,5,6,7,8
CME2023	Compulsory	2,6	1,2,4,8	1,2,3,6	1,2,4,5,6,7,8
CME2024	Compulsory	2,5,6	1,2,3	1,2,3,4,6	1,2,4,5,6,7,8
CME2025	Compulsory	1,2	1,2,4	1,2,3,4,6	1,2,4,5,6,7,8
CME2026	Compulsory	1	1,2,3	1,2,6	1,2,4,5,6,7,8
ENG2011	Compulsory	1	1	6	2,5,6,7,8
CME3008	Compulsory	2,6,7	1,2,3	1,2,3,6	1,24,5,6,7,8
CME3011	Compulsory	2,7	2,4	2,6	1,2,4,5,6,7,8
CME3032	Compulsory	2,3,6,7	1,2,3,7,8	1,2,3,4,5,6,7	1,2,3,4,5,6,7,8
CME3033	Compulsory	2,6	1,3,5,8	1,2,3,4,5	1,2,4,5,6,7,8
CME3034	Compulsory	2,5,6,7,8	1,2,6	1,2,4,6,7	1,2,4,5,6,7,8
CME3035	Compulsory	2,6	1,2,3	1,2,3,4,5	1,2,4,5,6,7,8
CME3036	Compulsory	2,6	1,2,3,8	1,2,3,4,5,6	1,2,4,5,6,7,8
CME3039	Compulsory	2,3,4,5,6,7,8	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7	1,2,3,4,5,6,7,8
CME8002	Compulsory for HH82, Elective for all others	2,6,9	3,4	3,5	5,6,7,8
CME8008	Elective	1,9	1,2,6,8	2,4,6,8,9	1,2,4,5,6,7,8
CME8037	Compulsory for HH82, Elective for all others	6	4	8	1,2,3,5,6,7,8
CME8038	Compulsory for HH82, Elective for all others	5,9	3,6	2,4,7	1,2,3,5,6,7,8
CME8101	Elective	2,9	3,4	2	4,5,6,7,8
CME8102	Elective	2,9	3,4	2	4,5,6,7,8
CME8103	Compulsory for H830 Elective for all others	2,7,9	1,2,3,4	2,,8,9	5,6,7,8
CME8104	Compulsory for H830 Elective for all others	2,7,9	1,2,3,4	2,8,9	5,6,7,8
CME8105	Compulsory for H830 Elective for all others	2,7,9	1,2,3,4	2,8,9	5,6,7,8
CME8106	Compulsory for H830	2,7,9	1,2,3,4	2,8,9	5,6,7,8

	Elective for all others				
CME8107	Compulsory for H833 & H815. Elective for all others	2,7,9	4	2	4,5,6,7,8
CME8109	Compulsory for H831 Elective for all others	2,6,7,9	1,2,3,4	2	4,5,6,7,8
CME8111	Elective	2,9	1,2,3,4	4,9	4,5,6,7,8
CME8114	Compulsory for H831 Elective for all others	9	1,2	1,2,8,9	4,5,6,7,8
CME8117	Compulsory	9	1,2,3,4,7,10	1,2,4,6,7,8,9	1,2,4,5,6,7,8
ENG3002	Elective	1,	2	3,10	5,6,7,8

Additional modules for H831 not listed above

		Intended Learning Outcomes			
Module	**Type**	**A**	**B**	**C**	**D**
BIO8009	Compulsory	1,9	2,3,4	1,2,4,5,6	1,2,4,5,6,7,8
BIO8017	Compulsory	1,9	2,3,4	1,2,4,5,6	1,2,4,5,6,7,8