	PROGRAMME SPECIFICATION	Newcastle University

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	M.Sc.
4	**Programme Title**	Ecological Consultancy
5	**UCAS/Programme Code**	5054
6	**Programme Accreditation**	Not applicable
7	**QAA Subject Benchmark(s)**	Not available
8	**FHEQ Level**	Level 7
9	**Date written/revised**	May 2013

10	**Programme Aims**

1.   The primary purpose of this programme is to provide environmental and related science graduates with the advanced conceptual understanding, detailed factual knowledge, specialised technical skills and professional awareness for them to follow successful careers as ecological consultants or a range of other environmentally related careers. The programme also forms an advanced training in a range of environmentally related areas and skills that extend graduates' capabilities for further studies.

Specifically, the course aims to provide:
- a professionally–focussed postgraduate qualification that bridges the gap between academic undergraduate programmes and an area of employment that recruits many natural science graduates, including quantitative techniques, GIS, environmental impact assessment, the environment business, ecological surveys, environmental law and environmental management and sustainability.
- specialist skills in chosen areas of environmental science such as wildlife conservation policy and practice, bioremediation, trees and environmental impacts and sustainable development.
- skills needed to define and evaluate an environmental problem within a commercial and multidisciplinary framework that is constrained by regulation and limited resource
- and equip students with the knowledge base and skills required for employment in small or large businesses and organisations, or to be self-employed.

The programme will also enable students to meet the Masters level (M, level 4) of the QAA framework for higher education qualifications for England, Wales and Northern Ireland and which takes appropriate account of the subject benchmark statements in Earth Sciences, Environmental Sciences and Environmental Studies

Graduates will have demonstrated:

(i) a systematic understanding of knowledge, and a critical awareness of current environmental problems and new insights, much of which is at, or informed by, the forefront of the practice of environmental science.
(ii) a comprehensive understanding of techniques applicable to ecological consultancy
(iii) originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in ecological science.
(iv) conceptual understanding that enables the student to evaluate critically current research and advanced scholarship to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

In addition to these academic and technical objectives, the course aims to equip its graduates with a suite of key skills, including the ability to communicate effectively, to employ IT and library resources appropriately, the capacity to prioritise work and to meet deadlines, the ability to work independently and in collaboration with others, and the capacity to use initiative and to solve problems.

2. The qualities and attributes of graduates will be such that they are able to:

   (i) deal with complex environmental issues both systematically and creatively, making sound judgements in the absence of complete data, and to communicate their conclusions clearly to specialists and non-specialists alike;
   (ii) demonstrate self-direction and originality in tackling and solving problems, and act independently in planning and implementing tasks at a professional level;
   (iii) continue to advance their knowledge and understanding, and to develop new skills to a high level; and will have
   (iv) the qualities and transferable skills necessary for employment requiring: the exercise of initiative and personal responsibility; decision making in the complex and unpredictable situations; and the independent learning ability required for continuing professional development.

3. Provision will address the needs of employers in both small and large environmental consulting companies, in higher education, and in governmental and non-governmental regulatory and research institutes, in the UK and other countries, and also the background needs for those interested in starting their own consultancy business. These situations need suitably trained staff with a specialised interdisciplinary background to implement their client's brief and develop environmentally sound programmes. Graduates will be suitable employees because they will have acquired skills and demonstrated proficiency in:

   (i) understanding key concepts and technical procedures that underpin environmental science and practice in the regulatory framework

   (ii) a comprehensive understanding of appropriate scientific survey and experimental techniques

   (iii) the presentation and communication of results of a project investigation in both spoken and written form;

   (iv) the ability to critically review and assess scientific research and survey reports and assess papers relevant to their area of expertise.

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.

Knowledge and Understanding

On completing the programme students should have acquired (boldface = compulsory; italics = optional modules):

A1 Advanced knowledge and understanding of the subjects considered essential for employment within the field of ecological consultancy, including the regulatory and quality frameworks within which a business functions, the structure of a business and the function of its component parts.

   The Environment Business **CEG8607,** Foundations of Environmental Law and Policy **LAW8035,** Consultancy Project **BIO8095**

A2   Advanced knowledge and understanding of the scientific research method including observational and experimental techniques for the acquisition of information, and the critical evaluation of that information through data analysis, interpretation and presentation of results.

Quantitative Techniques, Experimental Design and Data analysis **ACE8022**, Ecological Survey Techniques *ACE8045*, Environment and Habitat Assessment Field Class *ACE8030*, Field Identification Skills **BIO8006**, Consultancy Project **BIO8095.**

A3   Knowledge and understanding of the legal and policy framework which defines the operating limits of the practice of environmental consultancy.

Foundations of Environmental Law and Policy **LAW8035**, Environmental Impact Assessment **SPG8013.**

A4   Advanced knowledge and practice in the methods of environmental survey and assessment, both the physical and biological components.

Ecological survey techniques *ACE8045*, Environment and Habitat Assessment Field Class *ACE8030*, Environmental Impact Assessment **SPG8013**, Field Identification Skills *BIO8006*, Biodiversity Conservation, Policy and Practice *ACE8042*

A5   Modelling methods and advances and information technology that may be used to help data acquisition and interpretation.

Quantitative Techniques, Experimental Design and Data Analysis **ACE8022**, GIS and Remote Sensing **BIO8014**, Consultancy Project **BIO8095**

A6   Advanced knowledge and understanding of the sources of environmental pollution and its abatement and relation to industry.

The Environment Business **CEG8607**, Consultancy Project **BIO8095**, Environmental Impact Assessment **SPG8013**.

A7   An advanced knowledge and understanding of a range of appropriate optional subject specialisations to suit personal interests and career goals including: management and environmental impacts, wildlife conservation, GIS and remote sensing, ecosystem management.

GIS and Remote Sensing **BIO8014**, Field Identification Skills **BIO8006**, Biodiversity Conservation Policy and Practice *ACE8042*, Ecosystem Management *ACE8041*, Environmental Management and Sustainability **CME8208**, Environment and Habitat Assessment Field Class *ACE8030*.

Teaching and Learning Methods

Teaching strategy
Specialist knowledge and understanding of the compulsory material is taught via lectures (A1-A7), practical classes (A2, A4, A6, A7), seminars (A1-A2, A4-A7), case studies (A1, A3, A5-A7) and field classes (A2, A4, A7) which form the advanced and conversion elements. Field based classes, and field trips and residential field visits and (A2, A4, A7) allows students to experience a wide range of techniques in identifying environmental properties and surveys. The 80-credit MSc consultancy project enables independent experimental design and analysis to be taught in the context of a project combining research and the interests of the industrial client (A2, A4-A6). Optional modules enable students to concentrate on advanced specialist material of individual interest (A7), and/or remedy deficiencies in specific areas.

Learning strategy
The understanding of lecture material is encouraged through independent reading (A1-A7) assisted by the provision of prioritised reference lists. Such learning is reinforced by formative feedback provided by practical exercises (A1-A2, A4-A7), seminars (A1-A2, A4-A7), case studies (A1, A3, A5-A7). The Consultancy Report reinforces these learning strategies through applying the learning to a designed and executed major project (A1-A7).

Assessment Strategy

Assessment strategy
Assessment of specialist knowledge and understanding is by formal unseen examinations held periodically throughout the course (which takes the form of blocked modules) and by coursework exercises that provide a fuller test of student understanding of the material and relevant literature (A1-A7) both in conjunction with written examinations (phase 1) and on modules that are assessed only by coursework exercises (phase 2). This is intended to provide a transition during the course of the degree programme from examinations to continuous methods and to reporting, both in thesis and oral forms. The first two employ a range of approaches in order to accurately assess student abilities. Written papers include essay, calculation, multi-part questions. Assessed coursework comprises practical exercises, seminar presentations, case studies, literature reviews, scientific/technical reports, a poster paper and essays. Field class and other reports are also assessed (A4,A5). Some of A1-A7, (depending on the topic of the MSc project), are also examined by means of the written MSc report, or the Diploma Dissertation for Diploma candidates (A1-A7).

Intellectual Skills

On completing the programme students should be able to:

B1 the ability to use and analyse quantitative information relevant to environmental scientists
ACE8022, *ACE8045, ACE8030,* **BIO8095,** *ACE8042,* **BIO8014**, **SPG8013**, **CME8208**, *ACE8041,* **BIO8006**.
B2 critically evaluate current research and advanced scholarship in the area of environmental science
ACE8030, **BIO8095**, *ACE8042,* **BIO8014**, **CEG8607**.
B3 present and summarise experimental and project data, and to critically appraise its significance, using appropriate statistical techniques, draw logical conclusions and propose directions for further study.
ACE8022, *ACE8030,* **BIO8095**
B4 develop logical thinking and a structured approach to problem-solving.
BIO8095, **BIO8014**, **SPG8013**, *ACE8041,*
B5 critically assess the value and limitations of existing information on a given subject and review consultancy reports
BIO8095, CEG8607
B6 problem solving skills
BIO8095
B7 *formulate or recognise key hypotheses and test hypotheses using logical and consistent quantitative or qualitative criteria, and to identify key data that allow tests to be made and design laboratory and field experiments.*
BIO8095, ACE8022, *ACE8030, ACE8041*

Teaching and Learning Methods

Teaching and learning strategies:

Both lectures and hands on computer practical sessions are used to impart knowledge and understanding on analysis and presentation of quantitative information (B1, B2, B5) usually in the context of lab or field data. Individual and/or group work projects on consultancy reports and problem solving (B3, B4) enhance student learning in these areas. This is reinforced through the training in reviewing peer reports and other documents. Group work is backed up by additional support from academics involved providing time for reflection and modification of thoughts.

Assessment Strategy

Cognitive skills are mainly continuously assessed in the form of practical reports and group and individual consultancy reports and form an important part of the assessment of such reports. The main emphasis is in the use of data analysis and review skills as tools rather than memorising methodologies. Some assessment of data interpretation may be included in an unseen examination held at the end of the relevant course.

Practical Skills

On completing the programme students should be able to:

C1 An understanding of the current regulatory and legal framework and how it impacts on the environment business
CEG8607, *ACE8042*, **LAW8035**
C2 Skills to produce a substantial consultancy report
CEG8607, SPG8013, **BIO8095** (ecological consultancy report)
C3 The ability to critically review a consultancy report
SPG8013, BIO8095
C4 The ability to execute a consultancy project
BIO8095
C5 The scientific skills applied to the collection of ecological data, operating a survey and collating information.
ACE8022, *ACE8042*, ACE8045, **BIO8014***,* **SPG8013***, ACE8041,* **BIO8006***,*
ACE8030
C6 Understanding of contaminated land regulations and remediation
CEG8607, **LAW8035.**

Teaching and Learning Methods

Teaching strategies
Understanding and knowledge (C1, C5 and C6) of regulatory frameworks and contaminated land and remediation are imparted by lectures and practical classes. Abilities in production, and critical review (C2-C4) of a consultancy report are enhanced in a project proposal and a specialised research thesis.

Learning Strategy
Independent reading of recommended references is important in understanding how knowledge is applied and techniques used (C1, C5-C6). However, students are encouraged to acquire skills through active participation in the project planning, experimental and survey design and data interpretation as part of the coursework covered initially in the specialised modules, and later through participation in field sampling, analysis and data interpretation in the field classes (C2-4, C5). Learning is reinforced and further developed, as MSc students apply their skills in data collection, analysis, interpretation and presentation in their MSc project (C1-6).

Assessment Strategy

Knowledge and understanding are assessed by unseen written examinations and a large proportion of continuously assessed material including project proposals, group reports (including written and oral presentations) and a research thesis.

Transferable/Key Skills

On completing the programme students should be able to:

D1 communicate conclusions clearly to specialist and non-specialist audiences by means of well prepared, clear presentations, and concise and grammatically correct written documents
   ACE8022, *ACE8045, ACE8030,* **BIO8095**, *ACE8042,* **SPG8013***, ACE8041,* **BIO8006***,* **CEG8607**
D2 plan, organise and prioritise work activities in order to meet deadlines
   BIO8095, *ACE8030, ACE8042,* **SPG8013**, **BIO8006**
D3 show originality and initiative in tackling and solving problems
   BIO8095, SPG8013, CEG8607*.*
D4 work independently (or in a team) in planning and implementing tasks at a professional or equivalent level
   ACE8045, ACE8030, ACE8042, **SPG8013**
D5 use library and other information sources skilfully and appropriately
   ACE8022, LAW8035, BIO8095, *ACE8042,* **SPG8013***, ACE8041,* **BIO8006***,* **CEG8607.**
D6 use IT resources skilfully and appropriately
   ACE8022, LAW8035, BIO8014 BIO8095, *ACE8042,* **SPG8013***,ACE8041,* **BIO8006**
D7 to make decisions in complex and unpredictable situations
   BIO8095, SPG8013

Teaching and Learning Methods

Teaching and learning strategies
Knowledge on the use of IT resources (D5, D6) is mainly delivered by lectures and understanding of material backed up by computer based practicals and a student based oral presentation (D1) where skills developed are used practically. Communication skills (D1) are developed extensively in many modules through written reports, essays, presentations, posters and case studies, with feedback provided to enhance learning. The ability to plan organise and prioritise activities (D2) and show originality and initiative (D3) is inculculated in lab and field exercises and is integral to the development of the student's project proposal and eventually to the formulation of the project itself. Problem solving issues (D3, D7), independent and team work (D4) and written report abilities (D2) are enhanced by problem solving practicals and case studies where findings are required to be written as concise reports and in some cases oral presentations. Report writing is further practiced in consultancy reviews and projects.

Assessment Strategy

Written and oral communication skills are assessed in project reports and oral presentations. IT skills are assessed in both oral presentations and in several computer practical reports. Teamwork is formally assessed in group case studies and problem solving practicals involving teams.

12	Programme Curriculum, Structure and Features

Basic structure of the programme

A range of modules (10 credits each) are given during Phase 1 in a blocked format and are assessed during, and usually at the end, of each block (except BIO8095). Further compulsory blocked modules are given over a shorter period of 8 weeks in Phase 2 (although BIO8006 actually runs in Semester 3). One 10 credit specialist optional module is normally taken in Phase 2, although the students can vary the study load. The learning outcomes described previously in Section 10 are mapped against module synopses.

The knowledge and subject specific compulsory modules include general environmental based studies (A1, A2) on Environmental Management and Sustainability and provide students with a solid environmental background (SPG8013). More specialist knowledge on environmental consultancy business (A1, C1) is provided in the compulsory module entitled The Environmental Business (CEG8607). Content of these modules also involves development of key skills (D1-D5) including GIS (BIO8014) and understanding of key legal background (LAW8035).

The first of the cognitive and key modules (ACE8022 Quantitative techniques, experimental design and data analysis) increases student data handling, computer (B1, B2, B3, D1, D5, D6) and other cognitive skills such as experimental design (B5). IT skills, oral and written communication and the use of computer aids for presentation and use of spreadsheets in statistical and modelling applications are assessed early in the programme (B1, B2, D1, D5 and D6). Cognitive and transferable skills are developed in the optional modules ACE8030 Environment and habitat assessment field class (10 credits) and ACE8045 Ecological survey techniques (10 credits). An introduction to legal aspects of environment management is provided by LAW8035 in Phase 1 (A3, C1).

Specifically, the course aims to provide:
- a professionally–focussed postgraduate qualification that bridges the gap between academic undergraduate programmes and an area of employment that recruits many natural science graduates, including quantitative techniques, GIS, environmental impact assessment, the environment business, ecological surveys, environmental law and environmental management and sustainability.
- and improve specialist skills in chosen areas of environmental science such as wildlife conservation policy and practice, bioremediation, trees and environmental impacts.
- and develop skills needed to define and evaluate an ecological problem within a commercial and multidisciplinary framework that is constrained by regulation and limited resource
- and equip students with the knowledge base and skills required for employment in small or large businesses and organisations, or to be self-employed.

There are optional modules according to the preference of the student, which provide skills in general and subject specific environmental areas (A2, A5, C5) and cognitive and key skills (B1, B2, B4, D1-D2, D4-D6).

The consultancy project (BIO8095), commencing in October, enables students to apply knowledge and understanding (A1-A2, A5-A6), subject specific skills (B2-B5), cognitive skills (B1-B7) and key skills (D1-D7). It begins by discussions with the DPD and subsequently with their project supervisor and industrial partner which enables them to develop a wide range of skills. Students are required to execute a full ecological consultancy project that can be laboratory, desk or literature based and may involve placement with a relevant industry. Students will be encouraged to pursue their own interests, develop contacts and/or be given names of potentially interested companies, with guidance from selected supervisors and degree programme director. The project planning phase is supported by a peer-review exercise of projects from previous cohorts (of varying quality) and detailed comments on Terms of Reference, and managed using a peer support network and timetabled structure (review activities) during the project timetabled period.

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

This is a one year full-time modular programme and consists of 2 parts: *a taught component* which runs from late September until May/early June, and *an independent project*, for which a consultancy report is submitted in August.

The taught component of the course consists of 70 credits compulsory modules and 30 credits optional modules. Modules are taught as blocked units (i.e. run over either 1-2 weeks or in parallel over 6 weeks). Modules are 10 credits in value (100 hours study time inclusive of lectures, practicals etc) except for the research project (80 credits). Most of the compulsory modules are dedicated towards advancing knowledge in general and specific relevant environmental issues although there is some crossover, revision and application of skills in the different modules. There is a spread of optional modules available allowing students to pursue individual interests. Overall the course is designed to accommodate a range of students from varying academic backgrounds (including overseas students) and the nature of modules available reflects this.

The research projects may be laboratory based or equally may be done in a relevant environmental industry depending on students' individual interests and placement availability. The key to the research project is flexibility and students will be encouraged to pursue their own interests with assistance provided by academic staff. We will encourage publication of information produced by students if appropriate.

Programme regulations (link to on-line version)

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

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13 Criteria for admission

Entry qualifications
Minimum of a lower second class BSc Honours degree. Normally the first degree subject should be related to the MSc subject.

Admissions policy/selection tools
Applicants who meet the criteria for admission are automatically sent an offer by the University. Applicants with qualifications and experience outside the normal criteria are referred to the Postgraduate Admissions team within the School of Biology for a decision.

Non-standard Entry Requirements
None

Additional Requirements
None

Level of English Language capability
IELTS 6.5 except countries exempted by University policy.

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14 Support for Student Learning
The Student Services portal provides links to key services and other information and is available at: https://s3p.ncl.ac.uk/login/index.aspx

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 Development 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 e.g. 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 Student Union 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 Board of Studies and/or the School Learning and Teaching Committee. 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, Learning and Student Experience Committee.

Programme reviews
The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching, Learning and Student Experience Committee. The FTLSEC takes an overview of all programmes within the Faculty and reports any Faculty or institutional issues to the University Teaching, Learning and Student Experience Committee.

External Examiner reports
External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Teaching, Learning and Student Experience 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 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 six 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 one-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, Learning and Student Experience Committee on whether the programmes reviewed should be re-approved for a further six year period.

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16   Regulation of assessment

Pass mark
The pass mark is 50% (Postgraduate programmes)

Course requirements
Progression is subject to the University's Masters Degree Progress Regulations, Taught and Research and Examination Conventions for Taught Masters Degrees. Limited compensation up to 40 credits of the taught element and down to a mark of 40 is possible and there are reassessment opportunities, with certain restrictions.

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

Summary description applicable to postgraduate Masters programmes		Summary description applicable to postgraduate Certificate and Diploma programmes	
<50	Fail	<50	Fail
50-59	Pass	50 or above	Pass
60-69	Pass with Merit		
70 or above	Pass with Distinction		

Role of the External Examiner
An External Examiner, a distinguished member of the subject community, is appointed by Faculty Learning and Teaching Committee, 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: http://www.ncl.ac.uk/postgraduate/

The School Brochure: http://www.ncl.ac.uk/biology/assets/EC_Brochure.pdf

Degree Programme and University Regulations:
http://www.ncl.ac.uk/regulations/programme/2013-2014/documents/5054FMScECEcologicalConsultancy2013-14GW260313.pdf

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.

Mapping of Intended Learning Outcomes onto Curriculum/Modules

Or

Module	Type	Intended Learning Outcomes			
		A	**B**	**C**	**D**
ACE8022	**Compulsory**	2,4,5	1,3,4,7	5	1,5,6,
SPG8013	**Compulsory**	3, 4,6,7	1,4	2,3,5	1,2,3,4,5,6,7
BIO8006	**Compulsory**	2,4,7	1	5	1,2,5,6
BIO8014	**Compulsory**	5,7	1,2,4	5	6,
CME8208	**Compulsory**	7	1		
BIO8095	**Compulsory**	1,2,5,6	1,2,3,4,5,6,7	2,3,4	1,2,3,5,6,7
CEG8607	**Compulsory**	1,6	2,5	1,2,6	1,3,5
LAW8035	**Compulsory**	1,3		1,6	5,6
ACE8030	*Optional*	*2,4,7*	*1,2,3,7*	*5,*	*1,2,3,4*
ACE8041	*Optional*	*7*	*1,4,7*	*5*	*1,5,6*
ACE8042	*Optional*	*4,7*	*1,2*	*1,5*	*1,2,3,4,5,6*
ACE8045	*Optional*	*2,4*	*1,*	*5,*	*1,3,4*
ACE8021	*Optional*				
ACE8028	*Optional*				
ACE8049	*Optional*				
ACE8060	*Optional*				