MSc Environmental Technology

> PLEASE NOTE. This specification provides a **concise** summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. This specification provides a source of information for students and prospective students seeking an understanding of the nature of the programme and may be used by the College for review purposes and sent to external examiners. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the course handbook or on-line at http://www3.imperial.ac.uk/environmentalpolicy/teaching/msc. The accuracy of the information contained in this document is reviewed by the College and may be checked by the Quality Assurance Agency.

1. **Awarding Institution:**   Imperial College London

2. **Teaching Institution:**   Imperial College London

3. **External Accreditation by Professional / Statutory Body:** Not Applicable

4. **Name of Final Award** (BEng / BSc / MEng etc):   MSc/DIC

5. **Programme Title** (e.g. Biochemistry with Management):   Environmental Technology

6. **Name of Department / Division:**   Centre for Environmental Policy

7. **Name of Faculty:**   Natural Sciences

8. **UCAS Code** (or other coding system if relevant):   Not Applicable

9. Relevant QAA Subject Benchmarking Group(s) and/or other external/internal reference points

Earth sciences, environmental sciences and environmental studies 2007 (QAA 151 02/07)
http://www.qaa.ac.uk/academicinfrastructure/benchmark/statements/EarthSciences.asp

10. Level(s) of programme within the Framework for Higher Education Qualifications (FHEQ):

Master's (MSc, MRes)	Level 7

11. Mode of Study:

The programme is available full-time and part-time

12. Language of Study:

English

13. Date of production / revision of this programme specification (month/year):

September / 2016

14. Educational aims/objectives of the programme

The programme aims to:
• Provide the highest standard of training for environmental scientists and managers, who will become leaders in their fields, whether in academia, consultancy, research, government bodies, non-governmental organisations or industry and commerce, both nationally and internationally
• Deliver an holistic understanding of the interdisciplinary complexities underlying environmental issues integrating science, technology, law, economics, policy and management, with in-depth education in the more specific areas addressed by the eight specialist options
• Attract highly motivated students, both from within the UK and from overseas
• Develop new areas of teaching in response to the advance of scholarship and the needs of vocational training

The programme objectives are:
• A command of the range of subjects necessary to understand and resolve environmental problems and the ability to apply the knowledge to practical issues
• Specialisation on certain areas in greater depth
• Understanding of the fundamental mechanisms operating in the environment and the principles underlying the tools for sustainable environmental management
• Development of interpersonal and transferable skills
Quantitative and qualitative skills
• Development of the ability to conduct independent rigorous research into environmental problems with confidence

15. Programme Learning Outcomes

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: www.imperial.ac.uk/students/academic-support/graduate-attributes

Programme Outcomes

At the end of the MSc you will:
• Be skilled in interdisciplinary thinking and working
• Be a skilled problem solver for sustainability
• Be able to communicate and collaborate with specialist experts across the range of disciplines relevant to the environment: from science to economics, from law to engineering, from risk to policy.
• Be highly employable in your chosen environmental field

The programme overall provides opportunities for postgraduate students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in becoming professionals in this field

Knowledge and Understanding of:

A1. The current status and essential breadth of understanding of environmental science, technology,   and policy, the issues, and their interdisciplinary nature
A2. The underlying scientific principles for computational analysis and evaluation of statistical data
A3. The understanding and use of natural and social science research methodologies including quantitative and qualitative data analysis, sampling, experimental design, questionnaire design, interviews, including evaluation of their applicability, limitations and advantages
A4. The wide range and interdisciplinary nature of subjects for the understanding and resolution of environmental issues
A5. The fundamental mechanisms operating in the environment and the principles underlying the tools for sustainable environmental management
A6. Practical knowledge of research techniques
A7. Management and communication skills, including problem definition, project design, decision processes, teamwork, negotiation, written and oral reports, and scientific publications.

Teaching/learning methods and strategies

- Acquisition of A1 to A5 is through a combination of lectures, seminars, computer-based work and coursework, both in the core course and specialist option modules (October to March).
- Acquisition of A6 is through a combination of lectures, fieldwork, and laboratory based computer research through the Core Course, Option Course and utilised through a full-time, individual, supervised research project (April to September).
- Acquisition of A7 is through a combination of lectures, laboratory and fieldwork exercises, coursework, projects and the full time research project. Throughout the students are encouraged to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.
- Assessment of the knowledge base is through a combination of unseen written examinations (A1-7), assessed coursework (A1-7), group presentations (A1-7) and the individual research project report and interim viva (A1-7).

Intellectual (thinking) skills - able to:

B1. Analyse and solve environmentally based problems using an integrated multidisciplinary approach, applying professional judgements to balance costs, accuracy, reliability, and both realistic practical and strategic options
B2. Integrate and evaluate information
B3. Formulate and test hypotheses using appropriate methodological/ experimental design and collection and correct techniques for the analysis of appropriate quantitative/ qualitative data
B4. Plan, conduct and write-up a programme of original research.

Teaching/learning methods and strategies

- Intellectual skills for B1 are developed through the teaching and learning methods outlined in section 1 and through real case studies mainly as part of coursework/group-work.
- Through information filtering and processing, and data source validation required for problem solving coursework B2 skills are developed.
- Similarly, through data analysis, the use of computer-based exercises and small group seminars embedded in different parts of the programme B3 skills are also developed.
- All these contribute to the development of students ability to plan, conduct and write-up a programme of original research (B4), with experimental design and statistical skills developed in lectures, computer-based practical work, fieldwork, and team projects in the Core Course, Option Course and subsequently in the individual research project.
- Individual, formative and summative feedback is given to students on all work produced including oral presentations. The Core Course Exams, held in December, and the Option Course Exam, held in March, provide important summative feedback on student progress.

Practical skills – able to:

C1. Analyse and evaluate the critical aspects of an environmental problem
C2. Have a theoretical awareness to be able to select and/or practically utilise a wide range of research methodologies and analytical techniques
C3. Analyse statistical results and determine their strength and validity
C4. Prepare technical reports
C5. Give technical presentations
C6. Use the natural/ social scientific literature effectively
C7. Use computational tools and packages.

Teaching/learning methods and strategies

- Practical skills are developed through the teaching and learning programme outlined above (and in section 11).
- Practical experimental skills (C1 to C3) are developed through laboratory, computer-based exercises, field work and project work.
- Skills C4 and C5 are taught and developed through feedback on reports written and presentations made as part of coursework assignments.
- Skill C6 is developed through lectures, coursework reports and essays, group project exercises and the individual supervised research project.
- Skill C7 is taught and developed through coursework exercises and project work.

- Practical skills are assessed through laboratory experiment write-ups, field work and coursework reports and the research project dissertation.

Transferable skills – able to:
D1. Communicate effectively through oral presentations, computer processing and presentations, written reports and natural/social scientific publications
D2. Apply statistical and modelling skills
D3. Management skills: decision-making processes, objective criteria, problem definition, project design and evaluation, risk management, teamwork and coordination, and management of negotiations
D4. Integrate and evaluate information from a variety of sources
D5. Transfer techniques and solutions from one discipline to another
D6. Use Information and Communications Technology
D7. Manage resources, time and personal well-being
D8. Learn independently with open-mindeness and critical enquiry
D9. Learn from the shared experiences of others
D10. Learn effectively for the purpose of continuing professional development.

Teaching/learning methods and strategies
- Transferable skills are developed through the teaching and learning programme outlined above and in section 17.
- Skill D1 is taught through coursework and developed through feedback on reports and oral presentations.
- Skill D2 is taught through lectures and practical work and developed, as appropriate, during the individual research project.
- Skills D3 to D5 are developed through project work and lecture/workshop based exercises.
- Skill D6 is developed through computer-based exercises, projects, fieldwork and other coursework activities and individual learning.
- Skill D7 is developed throughout the course within a framework of skill lectures/ workshops, staged coursework deadlines and the split examination system.
- Although not explicitly taught, skills D8 to D10 are encouraged and developed throughout the course, which is structured and delivered in such a way as to promote this.
- Skill D1 is assessed through coursework, written examinations.
- Skill D2 is assessed through coursework, written examinations and project work.
- Skills D3 to D5 are assessed in field and team exercises.

The other skills are not assessed formally.

The programme's competency standards document can be found at: https://www.imperial.ac.uk/environmental-policy/msc/msc-environmental-technology/course-description/learningapproach/

16. The following reference points were used in creating this programme specification

Course Handbooks (Core course, Options and Project term) and Earth sciences, environmental sciences and environmental studies Subject benchmark statement 2007 (QAA 151 02/07).

17. Programme structure, ECTS assignment and award requirements

The programme is currently offered as a full-time (Mode J9UF) one year course and as part-time (J9UF24) two year course normally with an industrial placement, and both lead to the MSc degree and the Diploma of Imperial College (DIC).

Students complete the Core Course in the first term (October-December) which comprises of six and a half taught modules, a small group seminar series, with continuous course work assessment.

Environmental policy seminars conducted by external speakers also occur throughout the first and second terms **(27 ECTS).**

In the Option Course in the second term (January-March) students complete their selected option based on their decision at course application. The following options are offered: Business and the Environment; Environmental Resource Management; Energy Policy; Environmental Analysis and Assessment; Environmental Economics and Policy; Global Environmental Change and Policy; Health and the Global Environment; Pollution Management; and Water Management. Written examinations are held in December (Core Course) and at the end of the spring term (Option Course). **(27 ECTS).**

The remainder of the course comprises an individual (18 week) research project including an interim-viva assessed within the Department, a thesis and an executive summary also assessed. **(36 ECTS).**

The overall pass mark is 50% and the core course (including course work), option course (including course work) and the research project contribute 30%, 30% and 40% respectively. A student following the course part-time will have to complete the Core Course and the Option term in the first year and do the remainder of the course in the second year.

Nearly all the learning on the course receives formal assessment. The exceptions are study tours on certain options and the environmental policy seminars by outside speakers during the first two terms, although these provide a general background for other assessed exercises such as the 'integrated questions' in the Core Course exam papers. In addition, although students have a degree of choice when answering exam questions, the exam papers are structured in such way that all modules are examined, requiring students to revise for all taught subjects.

The course is assessed on the basis of 30% for the first term core course, 30% for the second term option, and 40% for the project, it being necessary to pass all these three elements. The MSc in Environmental Technology is awarded on the successful completion of each of the three sections listed above. If any student fails any part of the course, depending on the situation and circumstances involved, it may be possible to resit the exam or resubmit the project the following year.

In the case of distinction, students must achieve a minimum of 70% mark in all three elements to fulfil the criteria for the award of a distinction. Similarly, a minimum of 60% in all three elements is required to fulfil the criteria for the award of a merit.

Term 1 - Core Course -   30% weighting of MSc award   (27 ECTS).

Coursework (to be completed in Term 1)	**1. Small Group Seminar (15%)**
35% Core Course Marks	**2. Quantitative Skills Assessment (10%)**
	3. Environmental Law Assessment (10%)
Exams (Week 11)	**1. Core Course Paper I**
65% Core Course Marks	**2. Core Course Paper II**

Sixty five percent of Core Course marks come from two closed book examinations which assess the learning from the modules on introduction to ecology, environmental pollution and control, environmental policy and management, environmental law, environmental economics, research methods and a half module on risk assessment. These exams are on two separate days and both papers are three hours in length. Students are required in each exam to answer three out of a choice of questions based on the teaching matter of the first term.

The remainder consists of an open-book environmental law examination (10%), a quantitative skills assessment (15%), and a small group seminar assignment (10%). The latter assess the ability of the students to examine critically particular environmental problems, working as teams in small groups and to come to an agreed conclusion.

Successful completion of this part of the course depends on the student being awarded a grade of at least 50% for the Core Course overall.

Term 2 - Specialist Option - 30% weighting of MSc award   (27 ECTS).

Each Specialist Option sets coursework assignments which are completed in Term 2 and all students sit one Specialist Option Exam (three hours in length) in Week 11. The ratio of marks given to coursework and exam varies for each option in the range of 30-50% for coursework & 50-70% for exam.

The Options are assessed as follows:

- **Environmental Resource Management**: 3-hour closed book exam (50%), modelling project (20%), short essay (10%), mini-project (20%);
- **Business and the Environment**: 3-hour open book exam (50%), business planning exercise (25%), company case study exercise (25%);
- **Energy Policy**: 3-hour closed book exam (50%), technology seminars/essay (10%), and policy project (40%);
- **Environmental Analysis and Assessment**: 3-hour open book exam (50%), two assessed coursework projects: the Waste Management Project (25%) and Hounslow Heath project report (25%).
- **Environmental Economics and Policy**: 3 hour closed book exam (50%), one group project (50%);
- **Global Environmental Change and Policy**: 4-hour open-book exam (50%), panel group exercise (40%), and negotiation (10%);
- **Health and the Global Environment**: 3-hour open book exam (50%); Hounslow Heath project report (25%); HGE casework studies (25%).
- **Pollution Management**: 3-hour open book exam (50%), two assessed coursework projects: the Waste Management Project (25%) and the group case-work pollution study (25%);
- **Water Management**: 3-hour open book exam (50%), Anglia Water project (25%) and Hounslow Heath project report (25%).

The use of practical, group-work or case-study related coursework and its assessment and associated examinations provide a very effective learning opportunity with multiple additional benefits. Students working in teams are required to submit verbal and written individual and/or group reports for different coursework case studies depending on the Option they study. The case studies are designed to provide graduates with the skills to enter a wide range of environmental careers, with particular emphasis on environmental sustainability, and their assessment has been designed to be part of the learning process.

Successful completion of this part of the course depends on the student being awarded a grade of at least 50% for the Specialist Option overall.

Term 3 - Research Project - 40% weighting of MSc Award   (27 ECTS).

Each student carries out an individual five-month research project often based on the Specialist Option studied in Term 2. The approximate length of this project is 20,000 words. In addition to the dissertation, each student must submit an executive summary of the dissertation (accounts for 5% of

the project mark) by the end of the academic year. If of an acceptable quality, the summary becomes available online (course website).

Training in research techniques is integrated across the core course and options, culminating in a course on social sciences techniques at the start of the project period. All of this is utilised in a project proposal which is formally assessed in pass or fail terms (with resubmission of fails). At the start of the project all students give short presentations in small groups and in July/August are subjected to a formal internal viva, whose outcome is recorded and can be used in any later moderation of project marks. The project reports are marked by the supervisor(s) and a second examiner (usually the option convenor) on the following basis: application and initiative (10%); introduction and problem definition (15%); methodology, analysis and discussion (45%); conclusions and recommendations (15%); structure and presentation (10%) and executive summary (5%).

Successful completion of this part of the course depends on the student being awarded an overall grade of at least 50% for the Research Project.

Assessment

All examinations required must be taken, and failure to do so other than on grounds of illness or the death of a near relative can result in students being failed in the examinations as a whole and therefore required to re-sit all elements in the following academic year. If students are ill at the time of an examination, a medical certificate must be supplied within 7 days and any examinations missed on account of illness cannot necessarily be taken until the following academic year. If possible, a Core Course exam resit will only be offered within the first week of the Project term and an Option Exam resit within the last week of August and only for those who have met the conditions above. Students are informed that any request for deferral of an element of the examinations, if it is supported by the Course Director, must be first approved by the appropriate College committee and that approval is only agreed in truly exceptional circumstances.

Similarly, the rules for late submission and excessive length of assignments and MSc thesis are in accordance with College guidelines, i.e. up to 10% may be deducted for excessive length beyond the stated word limit of 2,000 (in the case of Seminar essays) and up to 5% per day for late submission. If, in *exceptional* circumstances, students are unable to meet a particular deadline, students are advised to discuss this in advance with the member of staff concerned. Exceptional circumstances are only those beyond your control, normally illness or bereavement.

The final Examination Board, involving internal and external examiners, takes place in late November.

18. Support provided to students to assist learning (including collaborative students, where appropriate).

- Three day induction programme for orientation, introduction to library and information technology, and to environmental technology MSc Student Handbook and associated material, which includes descriptions of each module
- Extensive use of a virtual learning environment (Blackboard WebCT) for all coursework material and submission of assignments
- Timetabled access to careers advice from the Course's Director of Careers and Alumni
- A Tutorial System where personal tutors are responsible for the pastoral well-being of their tutees, helping them to engage with College support services when necessary, overseen by the Departmental Senior Tutor. Personal tutors are now explicitly responsible for providing feedback on student academic performance in the taught components of our MSc

- An information pack for tutors, including a check list style guide to actions required at different points in the academic year is provided and training workshops or relevant material are provided for all tutors, including help on pastoral support.
- A large community of postgraduate research students and postdoctoral research workers who work in the Centre for Environmental Policy, the Faculty of Natural Sciences at the South Kensington and Silwood Park campuses
- Library and other learning resources and facilities predominantly at South Kensington, although Silwood Park is also utilised for some teaching and research projects
- Dedicated computing facilities at South Kensington with 24hr access
- Open access to staff in the Centre for Environmental Policy
- A dedicated room for students on this MSc with PC facilities, a private study room, and a common room
- An MSc staff - student committee, which meets three times per year
- Numerous seminar series on natural sciences and computing at South Kensington which run throughout the year
- Students conducting their research projects at an external site are assigned a member of Imperial College London academic staff to oversee progress and advise on the project dissertation. Where practicable, students will be visited by College staff during their project
- Student e-mail and open personal access to tutorial staff including the Course Director
- Access to student counsellors on the South Kensington site
- Access to Teaching and Learning Support Services, which provide assistance and guidance, e.g. on careers
- Opportunities for students to conduct their research projects at a wide range of external institutions and companies, including placements overseas
- Procedures for reporting extenuating circumstances
- Codified procedures for requesting coursework extensions
- Procedures for dealing with plagiarism allegations
- Clarified procedures for reporting student absences

19. Criteria for admission:

The College's minimum is UK 2.2 Honours (or overseas equivalent).

However, for candidates with a 2.2 Honours without work experience, our course has an internal mechanism, under which a request for approval has to be made by the Option Convenor to the Director of the course before an offer is made. Exceptions for mature/experienced students with a 3rd class degree and more than 3 years' work experience, can be requested as a special case, which is normally prepared by the Option Convenor and has to be agreed by the Course Director before submission for Graduate School Panel consideration.

For non-Anglophones there is a requirement to pass the TOEFL test with a minimum score of 600, including 4.5 in the written English element.

20. Processes used to select students:

The admissions process for the MSc in Environmental Technology is a key part of its operational activities and its continuing success. Prospective students are given appropriate attention as soon as they have made contact with anyone associated with the course but are asked to apply as soon as possible. This facilitates the processing of their papers, and ensures that their qualifications and experience are appropriately considered after they apply and before any further discussions take place. Candidates are encouraged to think about their preferred Options and to state them in the Personal Statement on their form when they apply.

The Course has a strong policy that all applicants must be interviewed if not rejected. Where this is not possible because of physical constraints, such as country of residency of applicant, a telephone interview is normally arranged or an additional statement requested from the candidate.

21. Methods for evaluating and improving the quality and standards of teaching and learning

Mechanisms for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards
• Module reviews, based on feedback questionnaires and convenor reports
• Annual core course review chaired by the Core Course Director
• Biennial review of the course by the Graduate School
• MSc Staff – Student Committee, held each term
• MSc Committee held each term
• Biennial staff appraisal
• Peer teaching observations
• External Examiner reports
• Periodic review of the options
• Regular discussions with employers

Committees with responsibility for monitoring and evaluating quality and standards
• MSc Staff – Student Committee
• MSc Committee
• Board of Examiners – meets in November to consider awards.
• Graduate School
• Imperial College London, Quality and Academic Review Committee
• Imperial College London, Senate

Mechanisms for gaining student feedback on the quality of teaching and their learning experience:
• MSc Staff – Student Committee
• Meetings with personal tutee, option convenors and module leaders
• Course questionnaires evaluating the core course, including the specific modules and lecturers, the option terms, the project period and the course overall
• A project review session at the start of the project period
• Interim *viva voce* for the projects in July or August

Methods for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards:

The external examiner system and Boards of Examiners are central to the process by which the College monitors the reliability and validity of its assessment procedures and academic standards. Boards of Examiners comment on the assessment procedures within the College and may suggest improvements for action by relevant departmental teaching Committees.

The Faculty Studies Committees and the Graduate Schools' Postgraduate Quality Committees review and consider the reports of external examiners and accrediting bodies and conduct periodic (normally quinquennial) and internal reviews of teaching provision. Regular reviews ensure that there is opportunity to highlight examples of good practice and ensure that recommendations for improvement can be made.

At programme level, the Head of Department has overall responsibility for academic standards and the quality of the educational experience delivered within the department or division.

Committees with responsibility for monitoring and evaluating quality and standards:

The **Senate** oversees the quality assurance and regulation of degrees offered by the College. It is charged with promoting the academic work of the College, both in teaching and research, and with regulating and supervising the education and discipline of the students of the College. It has

responsibility for approval of changes to the Academic Regulations, major changes to degree programmes and approval of new programmes.

The **Quality Assurance Advisory Committee** (QAAC) is the main forum for discussion of QA policy and the regulation of degree programmes at College level. QAAC develops and advises the Senate on the implementation of codes of practice and procedures relating to quality assurance and audit of quality and arrangements necessary to ensure compliance with national and international standards. QAAC also considers amendments to the Academic Regulations before making recommendations for change to the Senate. It also maintains an overview of the statistics on completion rates, withdrawals, examination irregularities (including cases of plagiarism), student appeals and disciplinaries.

The **Faculty Studies Committees** and **Graduate School Postgraduate Quality Committees** are the major vehicle for the quality assurance of undergraduate / postgraduate courses respectively. Their remit includes: setting the standards and framework, and overseeing the processes of quality assurance, for the areas within their remit; monitoring the provision and quality of e-learning; undertaking reviews of new and existing courses; noting minor changes in existing programme curricula approved by Departments; approving new modules, changes in module titles, major changes in examination structure and programme specifications for existing programmes; and reviewing proposals for new programmes, and the discontinuation of existing programmes, and making recommendations to Senate as appropriate.

The **Faculty Teaching Committees** maintain and develop teaching strategies and promote inter-departmental and inter-faculty teaching activities to enhance the efficiency of teaching within Faculties. They also identify and disseminate examples of good practice in teaching.

The MSc Committee has responsibility for the approval of minor changes to course curricula and examination structures and approve arrangements for course work. They also consider the details of entrance requirements and determine departmental postgraduate student numbers. The Faculty Studies Committees and the Graduate School Postgraduate Quality Committees receive regular reports from this Committee.

Mechanisms for providing prompt feedback to students on their performance in course work and examinations and processes for monitoring that these named processes are effective:

Grade sheets are provided after examinations in 1st and second term on provisional results as well as individual meetings with option convenor and now personal tutor to review statements on examination scripts (verbal paraphrasing, students are not permitted to see scripts or comments). Detailed marking and feedback sheets are provided for all coursework projects. Meeting with Core Course external examiner after the first term to review student progress and performance.

Mechanisms for gaining student feedback on the quality of teaching and their learning experience and how students are provided with feedback as to actions taken as a result of their comments:

MSc Staff/Student meetings are held each term to discuss outstanding issues and problems relating to academic and operational experience. Academic feedback gives impetus to review lectures, seminar, tutor sessions. Operational issues feedback gives information on fixed resources for review or renewal. Each meeting begins with a review of actions given to specific individuals. Pastoral care by Personal tutors and option convenors and administration provide secondary centres to feedback on teaching and learning experience. All feedback is reviewed by appropriate staff members at management meetings. Messages are posted on Blackboard to inform students on academic or operational matters and disseminated through student representatives at Committee meetings.

e)   **Mechanisms for monitoring the effectiveness of the personal tutoring system:**

Core course, option and final questionnaires all have sections on personal tutoring. The Senior Tutor also actively monitors the system (i.e. reallocation of tutees if staff away for long periods).

Mechanisms for recognising and rewarding excellence in teaching and in pastoral care:

Staff are encouraged to reflect on their teaching, in order to introduce enhancements and develop innovative teaching methods. Each year College awards are presented to academic staff for outstanding contributions to teaching, pastoral care or research supervision. A special award for Teaching Innovation, available each year, is presented to a member of staff who has demonstrated an original and innovative approach to teaching. Nominations for these awards come from across the College and students are invited both to nominate staff and to sit on the deciding panels.

Staff development priorities for this programme include:

Active research programme in environmental policy, science, technology and related disciplines within the Centre for Environmental Policy and across Imperial College
Staff appraisal scheme and institutional staff development courses
College Teaching Development Grant Scheme to fund the development of new teaching and appraisal methods
Updating professional and IT/computing developments

22. Regulation of Assessment

Degree Classification:

The MSc in Environmental Technology will be awarded on the successful completion of all three parts of the course. If any student fails any part of the course, depending on the situation and circumstances involved, it may be possible to resit the exam or resubmit the project the following year.

In the case of distinction, a minimum of 70% mark in all three elements is required to fulfil the criteria for the award of a distinction. Similarly, a minimum of 60% in all three elements is required to fulfil the criteria for the award of a merit.

Marking Schemes for postgraduate taught programmes:

The Pass Mark for all postgraduate taught course modules is 50%. Students must pass all elements in order to be awarded a degree.

Processes for dealing with mitigating circumstances:

A candidate for a Master's degree who is prevented owing to illness or the death of a near relative or other cause judged sufficient by the Graduate Schools from completing at the normal time the examination or Part of the examination for which he/she has entered may, at the discretion of the Examiners, enter the examination in those elements in which he/she was not able to be examined on the next occasion when the examination is held in order to complete the examination, or be set a special examination in those elements of the examination missed as soon as possible and/or be permitted to submit any work prescribed (e.g. report) at a date specified by the Board of Examiners concerned. The special examination shall be in the same format as specified in the course regulations for the element(s) missed.

Applications, which must be accompanied by a medical certificate or other statement of the grounds on which the application is made, shall be submitted to the Academic Registrar who will submit them to the Board of Examiners.

Role of external examiners:

Our Course has ten external examiners, one for the Core Course and one for each of the nine Options of the course. The primary duty of external examiners is to ensure that the degrees awarded by the College are consistent with that of the national university system. External examiners are also responsible for approval of draft question papers, assessment of examination scripts, projects and coursework and in some cases attend project presentations or meet selected students. Although external examiners do not have power of veto their views carry considerable weight and will be treated accordingly. External examiners are required to attend each meeting of the Board of Examiners where recommendations on the results of individual examinations are considered. External examiners are required to write an annual report to the Rector of Imperial College which may include observations on teaching, course structure and course content as well as the examination process as a whole. The College provides feedback to external examiners in response to recommendations made within their reports.

Boards of Examiners

The Director of our Course is the Chairman for the Board of Examiners, appointed by the appropriate Graduate School Committee, every year from the beginning of the Academic session for twelve months in order to cover all the necessary work, as are our nine external examiners. College Examiners are appointed by the Chairman of Board of Examiners. Their names are supplied to the Graduate School as appropriate on request. Our Board acts for both the full- and part-time version of our course.

The number of Examiners appointed is well above the minimum necessary for the efficient conduct of the examination and the appropriate Graduate School Committee ensures that the Board of Examiners appointed is competent to examine the course concerned at Master's degree level. The number of External Examiners appointed for our course is sufficient to cover the academic diversity of programmes of study.

The Board meets once a year to determine the final results of the examination, while conduct with individual examiners is maintain at regular intervals as is necessary for the expedition of its business.

Records and minutes are kept of decisions of Board of Examiners. Minutes are sent to Registry on request and a member of registry is invited to join the Board of Examiners meeting each year.

A back-up system is in place for electronic storage and transmission of assessment data on external hard drives. This is the proviso of the Teaching Office and course Directorship.

Marking Scheme

In order to be awarded a result of merit a candidate must obtain a mark of 60 percent in each element; a result of distinction requires a mark of 70 per cent in each element. For the MSc in Environmental Technology the three elements constituting the award of the degree are the Core Course, the Specialist Option and the Thesis and therefore 60 per cent or 70 per cent are required in each respectively for merit or distinction awards.

Unless there are exceptional circumstances, candidates should only be considered for promotion to pass, merit or distinction if marks for all three elements have reached the relevant borderline.

Imperial College London

MSc Environmental Technology Examiners' Marking Scheme

A Distinction   **70 - 100%**   **First class piece of work showing a thorough grasp of the subject, and ability to synthesize and criticize, and critical use of supplementary reading.**

       90 – 100%   Outstanding – making an original contribution, by questioning or challenging prevailing paradigms, offering new insights that are informed by critical evaluation of current research/practice, clearly demonstrating innovative/creative thinking.

       80 – 89%   Excellent throughout, demonstrating a detailed knowledge and systematic understanding of key aspects of the subject, with strong evidence of independent thinking and original insights to the subject.

.

       70 – 79%   Showing a thorough grasp of the subject, and ability to synthesize and criticize, with critical use of supplementary reading, occasionally falling below a general level of excellence (i.e. original insights and innovative thinking).

B Merit   **65 - 69%**   A very good grasp of the subject and evidence of ability to synthesize and criticize including use of supplementary reading, but falling short of excellence in one or more of these aspects.

       60 - 64%   A good grasp of the subject and some evidence of ability to synthesize and criticize.

C Pass   **55 - 59%**   Satisfactory, with a good grasp of the relevant concepts and facts, but little evidence of the ability to both synthesize and evaluate, or with marked lapses.

       50 - 54%   Satisfactory, with a reasonable grasp of the relevant concepts and facts, but little evidence of the ability to synthesize and or evaluate, or with significant lapses.

F Fail   Below 50%   **40 - 49%**   Inadequate knowledge at Masters level, presenting less than 50% of the expected material (according to the model answer), and showing only a limited grasp of the basic concepts, with poor appreciation of the wider subject and little of evidence of synthesis or evaluation.

       35%   Shows confused understanding of the question and presents less than 40% of the expected material (according to the model answer), in a context relevant to the question.

       25%   Too inaccurate, too irrelevant, or too brief to indicate more than a vague understanding of the question, and presents less than a quarter of the expected material (according to the model answer) in a context relevant to the question.

       15%   Answer presents only two or three sentences or facts that are correct and relevant to the question.

       5%   Answer includes at most one sentence or fact that is correct and relevant to the question.

       0%   Answer contains nothing that is correct and relevant to the question.

Marking of Scripts and Essays/Reports/Dissertations

Every script and essay/report/dissertation shall be marked by at least two College Examiners or by one Assessor and one College Examiner, who shall afterwards prepare an agreed list of marks. The scripts and essays/reports/dissertations should be moderated by an External Examiner in accordance with the provisions above.

Coursework which counts towards a student's final classification should be marked in detail by one College Examiner, with a second internal marker having at least an overview of the work. If any differences of opinion emerge, the External Examiner should be asked to moderate.

Marks allocated to all scripts/essays/reports/dissertations may be subject to moderation. Where a Board of Examiners has determined that a particular cohort of students' marks are anomalous, and that this is due to an identifiable cause, then they may take action to scale those marks either upwards or downwards. Such scaling may only be done after consultation with an External Examiner, and must be applied consistently to all students in the cohort. Any such action must be reported and approved at the final meeting of the relevant Board of Examiners. Members of a Board of Examiners shall have the right to see the scripts, essays/reports/ dissertations and coursework of any candidate for the purposes of conducting the examination.

Examination scripts shall be retained until six months following the meeting of the Board of Examiners in the case of successful candidates. In the case of unsuccessful candidates scripts will be retained until six months following the meeting of the Board of Examiners at which the results of any retaken examinations were confirmed.

23. Indicators of Quality and Standards:

The best indication for the high quality and standards of our course has always been the employability of our graduates and the overall reputation of our course.

First destination data for MSc graduates, showing a high proportion find employment or further postgraduate research training in Environmental Technology and related areas

Favourable comments by External Examiners in all feedback provided..

Of particular importance is the output of an independent review of the quality of our educational provision by the Higher Education Funding Council for England where our course through a Quality Assurance Agency subject review process that took place in 1997 achieved an excellent score of 23 out of a maximum 24 points. Curriculum Design Content and Organisation = 4, Teaching Learning and Assessment = 4, Student Support and Guidance = 4, Student Progression and Achievement = 4, Learning Resources (facilities) = 3, Quality Management and Enhancement = 4.

The course also is regularly reviewed by Graduate School academic quality committees.

It should also be noted that In 1994 the College was awarded the Queen's Award for Higher and Further Education on the basis of our course.

A large number of prizes offered by external companies/employers to our graduates and for a range of criteria, demonstrating the strong links with alumni students in the business sector. The course or components of it have been privileged to be awarded a series of prizes from some of the top companies in the environmental arena (see below).

- **Adnams Prize**
  A Prize for excellence in Business and the Environment.
- **AECOM Prize**
  A first prize award of £750, given annually for an outstanding overall performance on the MSc course as a whole, and a second prize of £250 for the runner up.
- **Arcadis Water Management Prize**
  A prize awarded to a Water Management student, worth £250, for the best overall assessment of Risk, associated with the contamination of Hounslow Health.
- **The Charlotte Rich Memorial Prize**
  A prize awarded to a Natural Sciences Option student, worth £200, for the highest mark for a thesis related to waste or wastewater management.
- **COLT Foundation Prize (introduced in 2013-14)**
  An award of £200 for the best dissertation in the field of occupational and/or environmental health.
- **Environmental Resources Management (ERM) Prize for an outstanding thesis**
  The environmental consultancy, Environmental Resources Management (ERM), has generously offered a prize of £1000 per annum for an outstanding MSc thesis.
- **Nigel Bell Prize (introduced in 2013-14)**
  An award of £250 for the best research Thesis on a topic related to pollution management.
- **Ross Makuch Prize**
  Prize for the highest grade on the Environmental Law examination in the Core course.
- **Veolia Prize**
  A prize awarded for the top mark in the Environmental Pollution & Control module exam of the Core Course to the value of £300.

.

24. Key sources of information about the programme can be found in:

http://www3.imperial.ac.uk/environmentalpolicy/teaching/msc
http://www3.imperial.ac.uk/pgprospectus
Handbooks for each of the eight specialist options and for the Core Course are available on Blackboard.

25. Supporting information

- The College's entry requirements for postgraduate programmes can be found at:
  www.imperial.ac.uk/study/pg/apply/requirements

- The College's Quality & Enhancement Framework is available at:
  www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance

- The College's Academic and Examination Regulations can be found at:
  http://www3.imperial.ac.uk/registry/proceduresandregulations/regulations

- Imperial College is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a Supplemental Charter and Statutes was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of the College's Centenary, 8th July 2007, established the College as a University with the name and style of "The Imperial College of Science, Technology and Medicine".
  http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters-statutes-ordinances-and-regulations/

- Imperial College London is regulated by the Higher Education Funding Council for England (HEFCE)
  http://www.hefce.ac.uk/reg/of/