UNIVERSITY OF YORK

POSTGRADUATE PROGRAMME SPECIFICATION

This document applies to students who commence the programme(s) in: September 2017							
Awarding institution		Teaching institution					
University of York			University of York				
Department(s)							
Chemistry							
Award(s) and program	me title(s)		Level of qualification				
MSc in Green Chemist	ry & Sustainable Industr	Level 7 (Masters)					
PG Dip in Green Chem	istry & Sustainable Indu	strial Technology					
PG Cert in Green Cher	nistry & Sustainable Indu	ustrial Technology					
Award(s) available as i	interim awards						
Postgraduate Certificate	e in Green Chemistry & Su	stainable Industrial Technology	1				
Postgraduate Diploma ir	n Green Chemistry & Sust	ainable Industrial Technology					
Admissions criteria							
possible for candid course.	ormally have a good hon dates without an honours	s degree, but with sufficient r	rseas equivalent in Cher elevant industrial and ec	ducational experier	subject. It is nce to enter the		
Length and status of t	he programme(s) and mo	ode(s) of study					
Programme	Length (years) and	Start dates/months		Mode			
-	status (full-time/part-	(if applicable – for					
	time)	programmes that have					
		multiple intakes or start					
		dates that differ from the					
		usual academic year)		D : 4	0/1		
			Face-to-face,	Distance	Other		
	1 year full time	Sontombor	Campus-based	learning	No		
MSc	r year fuir time	September	yes	no	NO		
PG Certificate	6 months full time	September	Yes	No	No		
PG Diploma	9 months full time	September	Yes	No	No		
Language of study	English						
Programme accreditat	ion by Professional, Stat	utory or Regulatory Bodies (if applicable)				
Royal Society	of Chemistry						
Educational aims of th	e programme(s)						
For the Masters, Diplom	a and Certificate:						
To equip society's	students with the tools, te increasing needs for gree	chniques and "culture" to ensu n chemistry and clean technolo	re that they can rapidly ma gy	ake a positive impac	t on industry's and		
To provid presenta	de students with an aware tions and other activities le	ness and understanding of ind ed by industrialists, and through	ustrial and commercial pro	blems and drivers t the research project	hrough a series of		
		,					
 To help s 	students understand the ir	nportance of a multidisciplinary	approach to solving gree	n chemistry and su	stainable industrial		
technolo	gy related problems and to	o modern scientific and technology	ogical research.				
- .							
Io provi	de students with the opp	portunity to develop a range of	of key skills of relevance	to both chemical	and non-chemical		
employn	ient, including presentation	ns, TT skills and engaging with t	ne public.				
Additionally for the Diplo	oma (if applicable):						
reactionally for the Diple							
To provid	To provide the students with some understanding of the route to protecting and commercialising a new invention						
 To provide students with research training and sufficient exposure to chemical research to serve as in introduction for a career in scientific research through the execution of a research project. 							
Additionally for the Mast	ore.						
Additionally for the Mast							
To provid	de the students with some	understanding of the route to p	protecting and commerciali	ising a new inventio	n		
 To provide students with research training and sufficient exposure to chemical research to serve as a foundation for a career in scientific research through the execution of an extended research project. 							

Intended learning outcomes for the programme – and ho learning outcomes	w the programme enables students to achieve and demonstrate the intended
This programme provides opportunities for students to develop and demonstrate knowledge and understanding qualities, skills and other attributes in the following areas:	The following teaching, learning and assessment methods enable students to achieve and to demonstrate the programme learning outcomes:
A: Kno	owledge and understanding
Knowledge and understanding of: For the Masters, Diploma and Certificate:	Learning/teaching methods and strategies (relating to numbered outcomes):
Knowledge of the principles of Green Chemistry	These Learning and Teaching methods are used for all the key points in this section:
Knowledge of the major Green Chemistry and Clean Technology techniques (chemistry and engineering)	Lectures
Knowledge of the major legislative economic and	Workshops Seminars
sociological drivers for Green Chemistry and Sustainable Industrial Technology	Tutorials
Knowledge of the methods of calculating environmental	Group Activities Presentations
impact factors and an appreciation of their value and limitations	Practical Classes
Knowledge of the modern Green Chemistry scientific and	Supervisorial meetings
technological literature	Research Projects
Knowledge of the mechanisms and practise of patenting	Report Writing Techniques training
An appreciation of chemistry in an industrial context	
An appreciation of chemistry in an environmental context	
An appreciation of the need to use a multi-disciplinary approach to solve major environmental chemical-related problems.	Types/methods of assessment (relating to numbered outcomes)
	items coloured blue are assessed in closed-book examinations or via continuous assessment
B: (i	Skills – discipline related
Able to:	Learning/teaching methods and strategies (relating to numbered outcomes):
For the Masters, Diploma and Certificate: Ability to solve environmental chemical-related problems	The following teaching and learning methods are used in all key areas of this section:
through the integration of green chemistry and clean technology	Lectures
Ability to apply metrics and the basic principles of life cycle	Workshops
assessment to chemical manufacturing and use	Tutorials
Ability to solve problems in organic synthesis relating to the design of greener synthetic routes	Group Activities Presentations
Ability to work in teams on cross-disciplinary problems	Practical Classes Supervisorial meetings
Ability to make technical and non-technical presentations on environmental-related topical issues	Research Projects
Additionally, for the MSc and Diploma only:	Techniques training

Ability to efficiently search the modern scientific and patent	Types/methods of assessment (relating to numbered outcomes)
	All Items in this section are assessed in closed-book examinations or via
The planning, execution and interpretation of a research project	continuous assessment
В	: (ii) Skills - transferable
Able to:	Learning/teaching methods and strategies (relating to numbered outcomes):
	Lectures
Oral, visual and written communication skills including the critical assessment of information	Workshops
	Seminars
Problem solving skills both of a qualitative and quantitative nature	Tutorials
	Group Activities
Team-working ability (small and larger teams)	Presentations
Time management skills	Practical Classes
An ability to work on multiple tasks	Supervisorial meetings
Independent learning skills	Research Projects
Independent learning skills	Report Writing
An ability to present different viewpoints over controversial issues	Techniques training
Organisational skills particularly those associated with the efficient utilisation of time	
An awareness of public understanding of science, and	Types/methods of assessment (relating to numbered outcomes)
opportunity to take part in public facing activities	Items coloured blue are assessed mostly via continuous assessment
Additionally for the Diploma and Masters only	activities
An awareness of intellectual property (IP), protecting and	
exploiting IP	
C: Exp	perience and other attributes
Able to:	Learning/teaching methods and strategies (relating to numbered outcomes):
For the Masters, Diploma and Certificate:	Lectures
Hearing presentations from representatives of a wide range	Workshops
of professions (science-based industry, trading, law,	Seminars
	Tutoriale
Collaborating with industry or commerce	
Studying controversial topics with often extreme views (eg	Brocontations
from pressure groups and other NGOs)	Presentations
Opportunity to take part in public facing events	
Opportunity to take Advanced IT courses	Research Projects
	Report Writing
	Techniques training
	Types/methods of assessment (relating to numbered outcomes)
	no airect assignment
Polovont Quality Acquirance Assney hereby arts totan	nt(a) and other relevant external reference points (a g National Occurational
Relevant Quality Assurance Agency benchmark Stateme	nits) and other relevant external reference points (e.g. National Occupational

The overall course structure, content and programme objectives were approved by the EPSRC (core funders), the course External Advisory Committee, the Departmental Graduate School and the University Teaching Committee. It is also the first MSc of its kind to be accredited by the Royal Society of Chemistry.

The programme is mostly delivered by teaching staff of the Department of Chemistry. Visiting tutors with expertise in particular areas (engineering, energy, industry, law and business) make a valuable contribution to the course. All lectures and workshops led by external tutors are supported by Departmental tutors. All teaching material must be copied to the Course Administrator in advance of the course and must be approved by the Course Director or his Departmental staff nominee. Methods of monitoring teaching standards include:

<u>The Departmental Graduate School</u> managed by the Chair and Graduate Office, which meets once a term and is responsible for the effective delivery of the aims and objectives of the University regarding graduate teaching. The Graduate School reports regularly to the Departmental Board of Studies.

The Course Organising Committee, managed by the Course Director (as Chair), the course Deputy Director, the Course Administrator, meets typically twice a year (more often, if required) so as to monitor all aspects of the course including Student Feedback.

The Course External Advisory Committee managed by the Course Director (as Chair), the Course Deputy Director, the Green Chemistry Administrator and the Course Administrator meets once a year and considers any changes to the course, research projects and industrial sponsorship, student performance and destinations and regularly reviews course content and balance.

<u>The Assessment Group</u>, made up of the Examinations Officers, Course Director, at least one other course representative and the Course Administrator, is responsible for implementing and expediting the Departmental assessment policy. It reports to the Course Organising Committee and the Course External Advisory Committee.

<u>The Student Supervisor</u> is responsible for discussing academic progress with students and is the logical first point of contact for any problem, academic or otherwise, a student encounters. The course director is the overall supervisor to all students, but tutors run regular cohort meetings where students can also raise/discuss general issues. All students are also assigned one (or more) academic research project supervisor(s) in January (through to late September).

<u>Feedback</u> Questionnaires which are completed by students on each module are reviewed by the Module Co-ordinator and Course Director and the key points are reported to the Course Organising Committee and External Advisory Committee. They inform the Committee of success or otherwise, of the delivery of the components of the course and frequently serves as triggers for modifications to the programme.

Cohort Feedback Meetings

Meetings for all the MSc in Green Chemistry & Sustainable Industrial Technology students are held at the beginning of the course, and at the end of each year with the external examiner. Cohort meetings take place every few weeks during which feedback is gathered on recent modules/topics. This gives an opportunity for the course to be discussed and allows the students to voice their thoughts and opinions about the course. Where appropriate, suggestions from the students are acted upon. At the end of year meeting, the cohort has an opportunity to give feedback to the external examiner.

Examination Reports The Examinations Officer, in consultation with the Course Director, is responsible for compiling reports on the outcomes of the closed-book examinations.

The Course External Examiner nominated by the Graduate School undertakes a moderating role including:

- Approval of examination papers including model answers
- Consideration of the written work and marks awarded in all the closed examinations as well as Research Project, practicals and workshops
- Moderation of marks where appropriate
- Ensuring fairness and consistency in the decision-making process
- Attendance at the Course Organising Committee examinations meeting and agreement of the final list of marks
- Preparation of report on MSc in Green Chemistry & Sustainable Industrial Technology course.
- The External Examiner will be given the opportunity to meet with the students and discuss various aspects of the course.

<u>An Annual Programme Review</u> is carried out by the Department which includes consideration of student feedback and External Examiner's report, course statistics, review procedures and minor modifications. This review is forwarded to the University Teaching Committee for its views.

University award regulations

To be eligible for an award of the University of York a student must undertake an approved programme of study, obtain a specified number of credits (at a specified level(s)), and meet any other requirements of the award as specified in the award requirements and programme regulations, and other University regulations (e.g. payment of fees). Credit will be awarded upon passing a module's assessment(s) but some credit may be awarded where failure has been compensated by achievement in other modules. The University's award and assessment regulations specify the University's marking scheme, and rules governing progression (including rules for compensation), reassessment and award requirements. The award and assessment regulations apply to all programmes: any exceptions that relate to this programme are approved by University Teaching Committee and are recorded at the end of this document.

Departmental policies on assessment and feedback

Detailed information on assessment (including grade descriptors, marking procedures, word counts etc.) is available in the written statement of assessment which applies to this programme and the relevant module descriptions. These are available in the student handbook and on the Department's website: http://www.york.ac.uk/chemistry/internal/gradinfo/masters/

Information on formative and summative feedback to students on their work is available in the written statement on feedback to students which applies to this programmes and the relevant module descriptions. These are available in the student handbook and on the Department's website: http://www.york.ac.uk/chemistry/internal/gradinfo/masters/

Diagrammatic representation of the programme structure, showing the distribution and credit value of core and option modules, and the spread throughout the course

GREEN CHEMISTRY CERTIFICATE, DIPLOMA AND MSc COURSE MODULES

Module	Subjects covered	Credit Teaching Methods Value		Programme C D M		Term taught	Assessment		
een	Introduction to Green Chemistry		Lectures & Workshops				A		
s of Gr nistry	Control of Environmental Impact	20	Lectures & Workshops				А	Workshop Assignment	
nciples Cher	Alternative Reaction Media		Lectures & Workshops				A	Examination	
Pri	Catalysis for Green Chemistry		Lectures & Workshops				A		
reen	Clean Synthesis		Lectures & Practical				А	Workshop	
n of G nistry	Renewable Resources	20	Lectures & Practical				Sp	Practical Assignment	
licatio Chen	Energy Efficiency & Emerging Technologies		Lectures & Workshops				Sp	Presentation	
App	Chemical Engineering and Clean Technology		Lectures & Workshops				Sp		
	Attainment of 60 Credits	- Completio	n of Certificate or continu	ie to D	iplom	a or M	Sc		
Skills	Advanced IT Skills, CV & Interview Techniques	20	Workshops				A, Sp	Workshop Presentation	
erable	Green Chemistry Presentations	20	Workshops Seminars				A, Sp	Assignment	
ansf	Literature Seminars		Workshops				А		
Tra	Public Awareness		Lectures Workshops				A, Sp, Su		
isation emistry	Greener Products		Lectures & Workshops				Su		
iercial en Ch	Intellectual Property	20	Lectures, Seminars & Workshops				Su	Workshop Presentation	
Comr of Gre	Commercialisation: Business Plan Development		Lectures & Workshops				Su	Assignment	

nistry Research roject	Diploma Research Project	40	Research Project				A, Sp, Su	Report
n Cher P	Attainment of 120 Credits – Completion of Diploma							
Gree	Masters Research Project	100	Research Project				A, Sp, Su	Report Presentation
Attainment of 180 Credits – MSc Awarded								

Diagrammatic representation of the timing of module assessments and reassessments, and the timing of departmental examination/progression boards

See Appendix 1, Summary of teaching, assessments, reassessments and progression & examination Boards

Overview of modules

Core module table							
Module title	Module code	Credit level ¹	Credit value ²	Prerequisites	Assessment rules ³	Timing (term and week) and format of main assessment ⁴	Independent Study Module? ⁵
Principles of Green Chemistry	CHE00001M	7	20	BSc 2ii Chemistry or similar		Please see Appendices for breakdown of the course	no
Application of Green Chemistry	CHE00002M	7	20	BSc 2ii Chemistry or similar		assessments.	no
Commercialisation of Green Chemistry	CHE00003M	7	20	BSc 2ii Chemistry or similar			no
Green Chemistry Transferable Skills	CHE00004M	7	20	BSc 2ii Chemistry or similar			no
Diploma Research Project		7	40	BSc 2ii Chemistry or similar			no
MSc Research Project	CHE00005M	7	100	BSc 2ii Chemistry or similar	NC: as per F3 & F9 in regulation guide to assessment		yes

Option modules - NONE

Module title	Module	Credit level	Credit	Prerequisites	Assessment	Timing and format of main	Independent
	code		value		rules	assessment	Study Module?

¹ The **credit level** is an indication of the module's relative intellectual demand, complexity and depth of learning and of learner autonomy. Most modules in postgraduate programmes will be at Level 7/Masters. Some modules are permitted to be at Level 6/Honours but must be marked on a pass/fail basis. See University Teaching Committee guidance for the limits on Level 6/Honours credit.

² The **credit value** gives the notional workload for the module, where 1 credit corresponds to a notional workload of 10 hours (including contact hours, private study and assessment)

³ **Special assessment rules** (requiring University Teaching Committee approval)

P/F - the module is marked on a pass/fail basis (NB pass/fail modules cannot be compensated)

NC - the module cannot be compensated

NR - there is no reassessment opportunity for this module. It must be passed at the first attempt

⁴ AuT – Autumn Term, SpT – Spring Term, SuT – Summer Term, SuVac – Summer vacation

⁵ Independent Study Modules (ISMs) are assessed by a dissertation or substantial project report. They cannot be compensated (NC) and are subject to reassessment rules which differ from 'taught modules'. Masters programmes should include an ISM(s) of between 60 and 100 credits. This is usually one module but may be more.

Transfers out of or into the programme						
Exceptions to University Award Regulations approved by University Teaching Committee						
Exception Date app	roved					
Quality and Standards						
The University has a framework in place to ensure that the stan is enhanced.	dards of its programmes are maintained, and the quality of the learning experience					
Quality assurance and enhancement processes include:						
 The academic oversight of programmes within departments by a Board of Studies, which includes student representation The oversight of programmes by external examiners, who ensure that standards at the University of York are comparable with those elsewhere in the sector Annual monitoring and periodic review of programmes The acquisition of feedback from students by departments. The course is accredited by the Royal Society of Chemistry 						
More information can be obtained from the Academic Support C	Office: http://www.york.ac.uk/admin/aso/					
Departmental Statements on Audit and Review Procedures are available at: http://www.york.ac.uk/admin/aso/teach/deptstatements/index.htm						
Date on which this programme information was updated: August 2017						
Departmental web page: <u>http://www.york.ac.uk/chemistry/internal/gradinfo/masters</u>						
Please note The information above provides a concise summary of the main features of the programme and learning outcomes that a typical students might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the leaning opportunities that are provided.						

Detailed information on learning outcomes, content, delivery and assessment of modules can be found in module descriptions.

The University reserves the right to modify this overview in unforeseen circumstances, or where processes of academic development, based on feedback from staff, students, external examiners or professional bodies, requires a change to be made. Students will be notified of any substantive changes at the first available opportunity.