The University Of Sheffield.

Programme Specification

A statement of the knowledge, understanding and skills that underpin a taught programme of study leading to an award from The University of Sheffield

Programme Details

1. Programme title	Chemistry and Sustainability
2. Programme code	CHMT20
3. QAA FHEQ level	Level 7 – Masters (including integrated)
4. Faculty	Science
5. Department	Chemistry
6. Other departments providing credit bearing modules for the programme	None
7. Accrediting Professional or Statutory Body	Not applicable
8. Date of production/revision	23 November 2021

Awards	Type of award	Duration
9. Final award	Master Chemistry and Sustainability	12 months
10. Intermediate awards	Postgraduate Diploma Chemistry and Sustainability	9 months
	Postgraduate Certificate Chemistry and Sustainability	9 months

Programme Codes

11. JACS code(s) *Select between one and three codes from the HESA website.*	F110	F111	F140
12. HECoS code(s) *Select between one and three codes from the HECoS vocabulary.*	101038	101041	101045

Programme Delivery

13. Mode of study	Full-time
14. Mode of delivery	Mixed. Primarily face to face with distance learning if and when necessary.

15. Background to the programme and subject area

There is an increased demand for graduates with skills in sustainability for chemistry both from industry and academia.

From industry because of an increased awareness that the development of chemically and financially sustainable manufacturing processes have to satisfy the public demand to respect the environment and in a sustainable manner. Like for example on how to tackle fundamental aspects related to renewables and fuel consumption, and what to leave to the next generations.

From academia, due to the development of many research areas, mainly in applied chemistry, like: catalysis, polymers, materials and energy storage, and analytical methods, to pave the way for the scientific basis that are needed to allow technological developments for greener processes.

In this context, this new MSc in Chemistry and Sustainability will offer students an opportunity to strike the balance between a specialization in sustainability aspects, but still with elements of generality associated with chemistry as a whole, and not restricted to specific applications like: water, food or energy. This will give students an awareness of sustainability issues in a wider context, how to communicate them to other scientists and the public, but also with tools useful for a career progression either for undertaking a PhD or for a career in industry where chemistry skills are needed and required.

This MSc is focused on students with a degree in chemistry or a related subject, for example students with a background in materials science or environmental engineering; and who have an interest to pursue a PhD in applied chemistry or a job in chemical industries with interest in sustainability.

The programme is also appropriate to professionals with a technical role in chemical companies who are considering a master programme as a form of professional development; as well as for students and applicants who are interested to return to higher education after pursuing an alternative career.

16. Programme aims

Master in Chemistry and Sustainability aims to:	
A1	Provide students with a broad knowledge and understanding of sustainability applied to chemistry, and how chemical and scientific research is conducted within a sustainability framework.
A2	Provide research-led teaching in applied chemistry which reflects current developments in the field.
A3	Develop students' technical skills required to pursue a PhD and/or a career in applied chemistry related to sustainability.
A4	Stimulate and promote students' ability to undertake self-directed learning.
A5	Facilitate critical thinking to analyse, judge and select information through studying, observation and experience, for the creation and formulation of new ideas in the field of sustainability.
A6	Promote the acquisition of transferable skills both in terms of practical experience and communication to a broad audience.

A7	Develop and enhance students' capacity to engage in extended periods of research, and prepare them for further academic study and/or employment in chemical industries with interests in sustainability, and engaging with global issues and contexts.

17. Programme learning outcomes

Knowledge and understanding On successful completion of the programme, students will be able to demonstrate knowledge and understanding of:		
		Links to Aim(s)
K1	Advanced areas of chemistry at the forefront of sustainability.	A1-A2
K2	Areas of current chemistry as a foundation of chemistry research applied to tackling sustainability challenges.	A1-A2
K3	How research into various areas of chemistry applied to sustainability is conducted.	A3
K4	How to acquire and evaluate data, carry out literature searching, write reports and give effective oral presentations.	A4-A6
K5	How to effectively communicate and disseminate research findings to a scientific audience and a public body.	A4-A6
K6	How to construct and organize a research project involving: research planning, experimental design and analytical techniques.	A1-A7
Skills and other attributes On successful completion of the programme, students will be able to:		
S1	Formulate and solve a range of chemistry and sustainability problems by using a logical methodology, as well as by demonstrating creative and analytical thinking.	A1-A2
S2	Use and apply a range of laboratory techniques and analytical tools and be capable to evaluate and validate the results.	A3, A6, A7
S3	Compile, editorialize and present the results of research-level investigations by using appropriate information technology.	A3-A7
S4	Plan, evaluate and produce advanced project work in a research environment, by applying and discriminating the appropriate knowledge within and up to the frontiers of the discipline.	A6, A7
S5	Propose creative and innovative solutions to known scientific or technological challenges or apply known solutions to new situations typical of a research environment.	A6, A7
S6	Work independently and as a part of a team deploying effective team organisation and personal responsibility.	A3, A4, A6
S7	Meet deadlines and demonstrate effective time management.	A3, A4, A7

18. Learning and teaching methods

Lectures, classroom lecturing, workshop and coursework (this will include independent desk based projects as well as group work activities), a research project.

19. Assessment and feedback methods

A major point of this programme is the use of a research-led approach and a strong emphasis in self-driven learning.

Assessments will include: written essays, problem solving, oral presentations, infographics, issue briefs, post notes, videos or a combination of these.

Concerning the assessment of the research project students will be assessed based on all of the followings:

- Supervisor assessment based on student efforts and technical skills.

- Thesis (Dissertation).

- Viva examination on their dissertation.

20. Programme structure and student development

This programme consists of 120 credits worth of taught modules including classroom and self-driven learning, as well as a 60-credit research project for a total of 180 credits.

Distinct features of the curriculum are:

(i) teaching modules delivered by nationally or internationally recognised researchers in their fields and related to sustainability challenges;

(ii) a strong emphasis in the dissemination of science;

(iii) students working individually and as a part of a team, to better represent working environments;

(iv) a very substantial research project to allow students to convert into practice all the knowledge acquired by the complementary modules and to come forward with creative ideas on how to address sustainability challenges.

Research project mostly to be done during the summer period. 60 credits, mandatory. This will be assessed by means of: a written report, supervisor report on commitment and competence, and a viva on the written report/dissertation.

Detailed information about the structure of programmes, regulations concerning assessment and progression and descriptions of individual modules are published in the University Calendar available online at http://www.sheffield.ac.uk/calendar/.

21. Criteria for admission to the programme

Detailed information regarding admission to programmes is available from the University's On-Line Prospectus at http://www.shef.ac.uk/courses/.

22. Reference points

The learning outcomes have been developed to reflect the following points of reference:

Subject Benchmark Statements
https://www.qaa.ac.uk/quality-code/subject-benchmark-statements

Framework for Higher Education Qualifications (2014)
https://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf

University Vision
https://www.sheffield.ac.uk/vision

Learning and Teaching Strategy (2016-21)
https://www.sheffield.ac.uk/polopoly_fs/1.661828!/file/FinalStrategy.pdf

23. Additional information

None

This specification represents a concise statement about the main features of the programme and should be considered alongside other sources of information provided by the teaching department(s) and the University. In addition to programme specific information, further information about studying at The University of Sheffield can be accessed via our Student Services web site at http://www.shef.ac.uk/ssid.