Confirmation that this version of the module specification has been approved by the School Learning and Teaching Committee:

………11th March 2015………………………………………….

**MODULE SPECIFICATION**

1. Title of the module

*PH307 Disasters*

1. School or partner institution which will be responsible for management of the module

*School of Physical Sciences*

1. Start date of the module

*Existing module, next running in 2015-16*

1. The number of students expected to take the module

*70*

1. Modules to be withdrawn on the introduction of this proposed module and consultation with other relevant Schools and Faculties regarding the withdrawal

*None. Existing module*

1. The level of the module (e.g. Certificate [C], Intermediate [I], Honours [H] or Postgraduate [M])

*C*

1. The number of credits and the ECTS value which the module represents

*15 (7.5 ECTS)*

1. Which term(s) the module is to be taught in (or other teaching pattern)

*Term 1*

1. Prerequisite and co-requisite modules

*None*

1. The programmes of study to which the module contributes

*Chemistry (BSc, BSc with Foundation Year, BSc with Year in Industry, MChem.)*

*This is not available as a wild module*

1. The intended subject specific learning outcomes

**A. Knowledge and Understanding of:**

11.1 Core and foundation scientific chemical, physical and biological concepts, terminology, theory, units, conventions, and laboratory practice and methods in relation to the chemical sciences.

**B. Intellectual Skills:**

11.2 Ability to recognise and analyse problems and plan strategies for their solution by the evaluation, interpretation and synthesis of scientific information and data.

11.3 The ability to use computational methods for the practical application of theory and to use information technology and data-processing skills to search for, assess and interpret chemical information and data.

11.4 Skills in essay writing and presenting scientific material and arguments clearly and correctly, in writing and orally, to a range of audiences. The ability to communicate complex scientific argument to a lay audience

**C. Subject Specific Skills**

11.5 The ability to collate, interpret and explain the significance and underlying theory of experimental data, including an assessment of limits of accuracy.

1. The intended generic learning outcomes

**D. Transferrable Skills**

 12.1 Communication skills, covering both written and oral communication.

 12.2 Generic skills needed for students to undertake further training of a professional nature.

12.3 Problem-solving skills, relating to qualitative and quantitative information, extending to situations where evaluations have to be made on the basis of limited information.

12.4 Numeracy and computational skills, including such aspects as error analysis, order-of-magnitude estimations, correct use of units and modes of data presentation.

 12.5 Information-retrieval skills, in relation to primary and secondary information sources, including information retrieval through on-line computer searches.

 12.6 Information-technology skills such as word-processing and spreadsheet use, data-logging and storage, Internet communication, etc.

 12.7 Interpersonal skills, relating to the ability to interact with other people and to engage in team working within a professional environment.

 12.8 Time-management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working. Self-management and organisational skills with the capacity to support life-long learning.

 12.9 Study skills needed for continuing professional development and professional employment.

1. A synopsis of the curriculum

Objectives: To examine actual and potential chemical disasters, spanning, for example:

Chemical Industry: Pharmaceutical, oil, nuclear, pesticide, explosive and health industries

The Environment: Emissions, water quality, toxins (guidelines), climate change

Criminality: Terrorism, pollution, toxin dumping

The module will explore the scientific principles and phenomenon that underpin such disasters, including their causes, effects and implications, possible mitigation and future prevention planning.

This module will cover some well-known and well-publicised events such as ‘Union Carbide’, ‘Bhopal’, ‘Thalidomide’, ‘Halifax Explosion’, ‘Chernobyl’, ‘Minamata disaster’, climate change, giving a clear account of each and discussing the scientific, technical and human contributions to the disaster - some of which have the potential to exact catastrophic change.

Lectures will address the following:
The limitations of scientific evidence, disaster management and mitigation, catastrophe theory.
essay and report writing, seminar and presentation skills. Case studies covering actual and potential disasters.

1. Indicative Reading List

*Limitations of Science; Sullivan, J.W.N. (1933)*

*Slide Rule: The Autobiography of an Engineer; Shute, N. (1956)*

*War and Peace; Tolstoy, L. (1993) (NB. Epilogue ONLY)*

1. Learning and Teaching Methods, including the nature and number of contact hours and the total study hours which will be expected of students, and how these relate to achievement of the intended module learning outcomes

Contact hours

**●11 hours lectures** this will address learning outcomes: 11.1; 11.5

**●2 hours presentation exercise** this will address learning outcomes: 11.4; 11.5; 12.1; 12.2; 12.3; 12.4; 12.6; 12.8; 12.9

Non-Contact hours

**●30 hours Group Study – prioritisation and coverage** this will address learning outcomes: 11.2; 11.5; 12.1; 12.2; 12.3; 12.7; 12.8

**●30 Searches and collation (Literature, database, information sources)** this will address learning outcomes: 11.1; 11.2; 11.3; 11.5; 12.2; 12.3; 12.4; 12.5; 12.6; 12.8

**●77 hours independent study and preparation:** this will address learning outcomes 11.1; 11.2; 11.4; 11.5; 12.3; 12.8

150 Total hours

1. Assessment methods and how these relate to testing achievement of the intended module learning outcomes

●Press release 20%

This will address learning outcomes:11.2; 11.4; 11.5; 12.1; 12.2; 12.7; 12.9

●Seminar performance/presentation 20%

This will address learning outcomes: 11.4; 12.1; 12.2; 12.7; 12.8; 12.9

●Essay 60%

This will address learning outcomes: 11.1; 11.2; 11.3; 11.4; 11.5; 12.1; 12.2; 12.3; 12.4; 12.5; 12.6; 12.8; 12.9

1. Implications for learning resources, including staff, library, IT and space

*None, existing module.*

1. *The Schoolrecognises and has embedded the expectations of current disability equality legislation, and supports students with a declared disability or special educational need in its teaching. Within this module we will make reasonable adjustments wherever necessary, including additional or substitute materials, teaching modes or assessment methods for students who have declared and discussed their learning support needs. Arrangements for students with declared disabilities will be made on an individual basis, in consultation with the University’s disability/dyslexia support service, and specialist support will be provided where needed.*
2. Campus(es) where module will be delivered:

Canterbury