# University of Huddersfield

# Programme Specification

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| --- | --- | --- |
| 1 | Awarding institution/body | University of Huddersfield |
| 2 | **Teaching institution University** | University of Huddersfield |
| 3 | **School & Department** | Applied Sciences: Department of Chemical Sciences |
| 4 | **Course accredited by:** | Chartered Society of Forensic Sciences |
| 5 | Mode of Delivery | Full time |
| 6 | Final Award | MSci Forensic and Analytical Science |
| 7 | Course title | MSci Forensic and Analytical Science with Industrial Experience  MSci Forensic and Analytical Science |
| 8 | UCAS code | F182 MSci/FAS |
| 9 | **Subject benchmark statement** |  |
| 10 | Date of Programme Specification | July 2013, updated April 2014  Reviewed March 2023 |

**11 Educational aims of the Programme**

Forensic science, the use of scientific techniques in criminal investigations, has advanced dramatically since Sherlock Holmes first enthralled those who read of his deductive skills. The first forensic science laboratory was set up in the USA by the Los Angeles Police Department in 1923 and in the UK by the Metropolitan Police at Hendon in 1935. Many Forensic Science service providers now exist to meet the needs of the defence and prosecution sides of the justice service. Research into fundamental aspects of forensic science is a growing area.

The forensic scientist needs to have a thorough understanding of the scientific principles behind the techniques used and how these may be applied. In addition, they also need the ability to identify the evidential material that is most likely to allow the particular "case" to be solved, the analytical methodology which will allow the appropriate measurements to be made and the ability to assess the significance of the results obtained. Finally, the forensic scientist must be able to present these results to a non-scientific audience under the stressful conditions that obtain in a court of law.

The analyses carried out in a forensic science laboratory are wide ranging. They include DNA profiling of blood and semen, often in cases of murder, rape and other serious assaults, the analysis of drugs, in murder, overdose and illicit manufacture cases, the analysis of glass, paint and plastics in burglary and hit-and-run cases, and the analysis of accelerants in arson cases.

The limited amount of evidential material available, together with the interfering substances with which it is usually combined, presents challenges to the analytical scientist beyond those normally found in the application of techniques available to them.

Most forensic scientists have entered the profession with a particular specialism. This course provides training in Analytical Chemistry, a highly relevant specialism for a forensic scientist and one that broadens the possible employment opportunities on graduation. More than half of all scientists are Chemists and around half of the advertised jobs for Chemists in recent years have been in Analytical Science. This is a vital area with Analytical Chemists in industry monitoring product quality, raw materials and effluent. In hospitals, as Clinical Chemists, they monitor the health of patients by analysing samples of blood or urine. Public Analysts, working on behalf of local government, check the food we eat and the air we breathe. Analytical Chemists also test for toxic substances in the work place, pollutants in the environment, and levels of drug abuse.

Forensic Science refers to the use of scientific techniques in the investigation of criminal cases. It embraces disciplines such as Chemistry, Physics, Botany, Zoology, Entomology, Anthropology, Medicine, Dentistry, Psychology and Psychiatry.

Workers in Forensic Science are usually specialists in one area of science, who happen to be working in a forensic environment. The specialist emphasis of this course is Analytical Science, an area where there are considerable job opportunities in addition to those in Forensic Science. The science is presented in the context of Forensic Analysis but this approach is relevant to many other areas of Analysis. This course encompasses much of the fundamental science, particularly Chemistry but also Biology, which underpin the Analytical Science and includes other areas of Forensic Investigation and the Collection and Presentation of Evidence.

The Department of Chemical and Biological Sciences has staff expertise in a broad cross-section of the sciences required from DNA profiling to analytical toxicology and a BSc (Hons) degree has been offered since 2000. The MSci, introduced in 2004, is an enhanced degree which provides additional breadth of study and is designed to equip graduates with the knowledge and skills necessary for a career in Research and Development within Forensic or Analytical Science. Much of the research activity in the department is relevant to the analytical sciences which are applied in forensic analysis.

*The main aims of the programme are to:*

(1) instil a sense of enthusiasm for forensic science in students;

(2) provide a knowledge in key areas of forensic science;

(3) provide a relevant knowledge in the main branches of chemistry (inorganic, organic, physical and analytical);

(4) provide training in the safe and competent use of laboratory equipment;

(5) develop in students an ability to apply their chemical and forensic knowledge and skills to the solution of theoretical and practical problems in forensic and analytical science;

(6) develop, through an education in forensic and analytical science, a range of transferable skills, including mathematical and IT skills, of value in scientific and other areas of employment;

(7) prepare students for a career as a research scientist.

###### 12 Intended learning outcomes

|  |
| --- |
| ***Knowledge and Understanding*** |
| Students will:  (8) have a basic knowledge of forensic science;  (9) have a basic knowledge of chemistry;  (10) have a basic understanding of the mathematical principles and computing skills related to their application in forensic and analytical science;  (11) will have a deeper knowledge and understanding of certain aspects of forensic science;  (12) have a deeper knowledge and understanding of certain aspects of chemistry;  (13) be aware of the most recent developments in forensic and analytical science;  (14) have acquired sufficient knowledge and personal awareness to be able to make an informed choice of future career . |

| ***Skills and Other Attributes*** |
| --- |
| *Students will be able to:*  (15) demonstrate knowledge of essential facts, concepts, principles and theories in the areas mentioned above;  (16) apply their knowledge to the solution of qualitative and quantitative problems of a familiar and unfamiliar nature;  (17) evaluate, interpret and generate forensic and chemical information and data;  (18) recognise and implement good measurement science and practice;  (19) present scientific results and conclusions clearly and correctly, in writing and orally, to a variety of audiences;  (20) use computers for data processing and retrieving forensic and chemical information;  (21) recognise and analyse novel problems and plan strategies for their solution. |

| ***Professional Practical Skills*** |
| --- |
| *Students will be able to:*  (22) handle chemicals and carry out standard laboratory synthetic procedures safely;  (23) operate standard chemical and forensic instrumentation;  (24) monitor chemical properties, events or changes by the observation, measurement and systematic and reliable recording thereof;  (25) interpret experimental results in terms of their significance and underlying theory;  (26) carry out risk assessments on experimental procedures;  (27) plan, design and execute practical investigations from the problem recognition stage through to the evaluation and appraisal of the results. |

| ***Transferrable/Key Skills*** |
| --- |
| *Students will have:*  (28) interpersonal skills;  (29) numeracy and computational skills;  (30) verbal and written communication skills;  (31) time management and organisational skills;  (32) information retrieval skills, including on-line searches;  (33) study skills for continuing personal development. |

###### 13 Programme structures and requirements, levels, modules, credits and awards

The course is consistent with the University Credit Accumulation and Transfer Scheme (CATS) where modules are predominantly of 20 credits, delivered and assessed over one year. In the first year, modules are at foundation level (“F” level credits) and provide underpinning knowledge, competencies and skills for the later intermediate and honours level modules (“I” and “H” level credits, respectively) taken in later years. Students are required to take 120 “F” level credits in the first year, 120 “I” level credits in the second year, 40 “M” level and 80 “H” level credits in the third year and 80 “M” level and 40 “H” level credits in the final year.

**Year 1** - The first year modules cover the fundamental chemistry required for the analysis of the wide range of evidential materials encountered in forensic investigations, the lectures and seminars being supplemented with relevant practical exercises. These modules are supported by others which are intended to aid the understanding, manipulation, analysis and presentation of chemical and biological data. Basic IT and communication skills are introduced.

**Year 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Module Code** | **Module Title** | **Credits** |  |
|  |  |  |  |
| SFC1001 | Inorganic Chemistry 1 | 20 | Core |
| SFC1002 | Organic Chemistry 1 | 20 | Core |
| SFC1004 | Analytical Science 1 | 20 | Core |
| SFC1007 | Practical Forensic Science 1 | 20 | Core |
| SFC1014 | Data Handling for Forensic Science | 20 | Core |
| SFC1003 | Physical Chemistry 1 | 20 | Core |

**Year 2** - Some of the modules build on the concepts introduced in the first year, whilst others introduce new topics relevant to forensic and analytical science. There is a continuing development of IT and communication skills.

**Year 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Module Code** | **Module Title** | **Credits** |  |
| SIC2002 | Organic Chemistry 2 | 20 | Core |
| SIC2004 | Analytical Chemistry 2 | 20 | Core |
| SIC2007 | Practical Forensic Science 2 | 20 | Core |
| SIC2010 | Crime Scene Investigation | 20 | Core |
| SIC2021 | Biology | 20 | Core |
| ***Either*** |  | 20 |  |
| SIC2001 | Inorganic Chemistry 2 | 20 | Optional |
| ***Or*** |  |  |  |
| SIC2003 | Physical Chemistry 2 | 20 | Optional |

**Year 3** – This may be spent in a university laboratory, in a commercial or industrial company, a forensic consultancy, governmental organisation, research establishment or hospital setting. During this year, students will be based in a laboratory environment on a full-time basis but will also carry out a research project, write a research paper, study forensic science and the law, and will also compile a portfolio of the skills they have acquired during Year 3. An advanced analysis module will be studied in addition.

**Year 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Module Code** | **Module Title** | **Credits** |  |
| SHC3013/3003\* | Laboratory Techniques/ Industrial Training\* | 40 | Core |
| SHC3014/3004\* | Investigative Project/ Industrial Project\* | 20 | Core |
| SHC4027 | Specialised Analytical Techniques | 20 | Core |
| SMC4019 | Criminal Law and Presentation of Evidence | 20 | Core |
| SMC4004 | Scientific Communication | 20 | Core |

**\* - SHC3003 and SHC3004 taken if on the MSci Forensic and Analytical Science with Industrial Experience course.**

**Year 4** – students study two modules in each of the Forensic and Analytical areas and undertake a research project.

**Year 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Module Code** | **Module Title** | **Credits** |  |
|  |  |  |  |
| SHC4004 | Analytical Science 3 | 20 | Core |
| SMC4006 | Forensic Investigation and Evidence Types | 20 | Core |
| SHC4007 | Specialist Forensic Workshops | 20 | Core |
| SMC4007 | Spectroscopic Techniques, Electroanalysis & Sensors | 20 | Core |
| SMC4018 | Research Project | 40 | Core |

**MSci in Forensic and Analytical Science** can be awarded upon successful completion of modules which give the student 480 credits of which no more than 120 must be at Foundation level, no more than 120 must be at Intermediate level, no more than 120 must be at Honours level and no more than 120 must be at Masters level. To obtain an MSci award a student shall also normally have undertaken andpassed a project or dissertation on a suitable academic subject worth 40 M level credits and 60 credits of other final year modules. They must also have achieved an average of at least 50% in the third year H and M level modules. Students must normally have achieved 120 credits to progress to the relevant next stage each year. To progress to the third year of the MSci the student must achieve an average > 60% in their first and second year modules. Students with an average of < 60% will transfer to the third year of the BSc (Hons) Forensic and Analytical Science Degree.

The class of award is determined at the Course Assessment Board. Classification will be determined from an average of the marks obtained from the second year I level modules and the third and final year H and M level modules. Those marks obtained from the M level modules shall have twice the weighting of those obtained from the I and H level modules. The averages for each stage will be calculated from the best 100 credits, with the proviso that not more than 100 credits can be counted from any one academic year of study

The aggregate percentage mark and the relevant classification will be as follows:

70 - 100 First Class

60 - 69 Upper Second Class

50 - 59 Lower Second Class

< 50 Fail

Students who score less than 50% may be eligible for the award of BSc (Hons) with a classification based on the aggregate mark of all final year H and second year I level modules studied:

> 60 Upper Second Class

50 - 59 Lower Second Class

40 - 49 Third

< 40 May be eligible for BSc

Students who enter directly into the third or final years will be classified based on the aggregate mark of those modules only.

Students who are unable or do not wish to complete the MSci programme are able to gain intermediate awards determined by the number and type of credits as follows:

**Certificate of Higher Education Forensic and Analytical Science**  120 “F” credits

**Diploma of Higher Education** **Forensic and Analytical Science** 120 “F” credits + 120 “I” credits

**BSc Forensic and Analytical Science** 120 “F” credits + 180 “I”/”H” credits (at least 60 “H” credits)

**BSc(Hons) Forensic and Analytical Science** 120 “F” credits + 120 ”I” credits + 120 ”H” credits

###### 14 Teaching, Learning and Assessment

Modules are delivered over two terms with normally two hours formal contact per week per module. Practical sessions are normally 3 or 4 hours. A variety of teaching methods are used, including lectures, tutorials, seminars, practicals and directed reading. Unilearn is widely used for the provision of supporting material. Individual student centred learning is achieved by the use of structured assignments, workbooks for practicals and IT based resources.

Most modules are assessed through work (during the year) and a formal unseen examination in the third term. Work is made up mainly from laboratory reports, problem solving assignments and short tests, including MCQs, as well as a small number of essays, oral and poster presentations. Formative tests are widely used, especially in the first year. A summary of assessment is given in appendix 2. A schedule is given to all students at the start of the academic year.

###### 15 Support for students and their learning

All students are assigned a personal tutor. For each individual within the chemistry suite there is a year tutor who often fulfills many of the roles of the personal tutor and is more often the main point of contact for students. The role of the year tutor/personal tutor in supporting students is seen as of primary importance. Students are encouraged to see their year tutor or personal tutor about any problems they have which do or may affect their ability to study and learn. The tutor will keep track of any serious on-going issues, but respects student confidentiality. Students may see other staff about an issue if they feel more comfortable doing so. Students are encouraged to see academic tutors if they have difficulty understanding material or with work.

Students are also supported in their study and learning through the following activities and services:

- Induction week

- Student Handbook

- Access to Unilearn virtual learning environment via the student portal

- Library

- School of Applied Sciences Resource Centre which provides a range of services including short-term loans, printing and photocopying, stationery, help with computing problems and informal advice

- Specialised computing laboratories and chemical/forensic science laboratories

- Student e-mail and open personal access to teaching staff including the Head of Division and the Course Leader

- Access to student counsellors at the University of Huddersfield and at the Student Village

- Access to Student Services, which provides assistance and guidance with learning difficulties

- Access to the School of Applied Sciences’ Learning Support Assistant

- Access to the Students' Union Academic Affairs Officer

Students are supported during Year 3 by a Visiting Tutor if they are based away from campus. Students will also be encouraged to maintain contact with their module tutors (by phone or e-mail, or in person if appropriate) to discuss the modules they are undertaking during Year 3. Guidance is provided in order to enable students to secure a Year 3 position. Staff provide guidance in the preparation of CVs, letters of application and interview techniques. Students apply for advertised posts or set up a suitable position through their own contacts.

###### 16 Criteria for admission

The admissions process will be in conjunction with other courses of the chemical sciences suite. Entry qualifications will normally be in accordance with those detailed in the School of Applied Sciences Scheme Document.

Normally candidates will be at least 18 years of age by 31st December of the year of entry.

For full-time and Sandwich courses, it is desirable that candidates have GCE/GCSE Grade C or above in English and Mathematics and an approved science subject.

For entry to the undergraduate degree candidates normally will have:

- Passes in 5 subjects at GCE/VCE/AVCE/GCSE including 12 units of study from 3, 6 and 12 unit awards with at least one 6 unit award in Chemistry or a 12 unit award in Science, *or*

- A BTEC Certificate/Diploma in science, *or*

- Successfully completed the University of Huddersfield Science Extended Degree*, or*

- Advanced, level 3, GNVQ or NVQ at an appropriate level, *or*

- Other qualifications deemed by the School to be acceptable.

Mature students, without formal qualifications may apply for admission through the School Accreditation of Prior Experiential Learning panel.

Entry to different stages is possible for all courses. At least 120 of the total credits for an award must be obtained through study at the University. Each course has identified requirements for entry at different points and stages. Accreditation is approved by the SAVP in accordance with the procedures outlined in the School of Applied Sciences Undergraduate Scheme Document.

###### 17 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 and Course evaluations (student evaluations and staff report)

Annual course evaluation report prepared by the Course Leader and considered by Course Committee and School Annual Evaluation Committee

Peer observation of teaching

External Examiners' reports

Employers' reports for Year 3 students based in Industry.

***Committees with responsibility for monitoring and evaluating quality and standards***

Student panel

Course Committee

School of Applied Sciences Teaching and Learning Committee

School of Applied Sciences Annual Evaluation Committee

University Teaching and Learning Committee

Course Assessment Board - meets in June and July to consider marks, progression and awards.

***Mechanisms for gaining student feedback on the quality of teaching and their learning experience***

Student panel and student representation on Course Committee

Student evaluation of modules.

***Staff development priorities include:***

Staff Annual Appraisal and institutional staff development

Updating professional developments

Regular course meetings and annual review and planning for subsequent academic year.

###### 18 Regulation of assessment

The minimum pass mark for each module at F, I and H level is 40%. The minimum pass mark for M level is 50%.

An overview of assessment details and procedures is provided in the Student Handbook and appendix 3.

To qualify for the award of MSci students must be credited with 480 credits and complete all the requirements of the course. The degree classification is based on a weighted average calculation as detailed in section 11.

The university regulations for awards can be found at the following web address:

[Regulations for awards (taught courses) - University of Huddersfield](https://www.hud.ac.uk/policies/registry/awards-taught/)

***Role of External Examiners***

External Examiners are appointed by the University Learning and Teaching Committee.

Three External Examiners are appointed from the academic community with responsibility for the chemical sciences suite of courses.

The role of the External Examiner is that of moderator. In order to do this they:

- approve examination papers

- review work and examination scripts

- interview borderline candidates for award

- attend the Course Assessment Board.

###### 19 Indicators of quality and standards

Reports of validation panels

Annual course reviews

External examiners’ reports

Qualifications and experience of staff

Report on University Review of Chemical Sciences 2003 and June 2009

**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. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the study module guide and handbook. The accuracy of the information contained in this document is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.**

**Key sources of information about the course can be found in:**

Student Handbook (Issued yearly)

Appendix 1. Staffing and Management

**MANAGEMENT OF PROGRAMMES**

The management structure for the MSci in Forensic and Analytical Science course operates within the School of Applied Sciences Scheme and acts on behalf of this and other courses for which the Department of Chemical & Biological Sciences is responsible.

**Course Committee**

The course will be under the overall management of the Course Committee which meets at least once per term and is responsible for any decisions concerning the suitability of modules for inclusion on the course. The chair of that Committee is the Course Leader. The Course Leader will implement policies and decisions of that committee and be responsible for the day to day running of the course. Feedback from student representatives is a standing item on the agenda.

**Year Tutors** are responsible to the Course Committee for the proper management and monitoring of each year of the Course. They will be responsible for advising students of their choice of modules and for support, guidance and counseling when appropriate. The final year tutor is responsible for the co-ordination and administration of the final year project. They will be responsible for allocating project supervisors to each student and will co-ordinate and oversee the assessment of the project.

**Module Leaders will** arrange and co-ordinate the teaching programme for the module(s) for which they are responsible, and maintain appropriate records. Module leaders meet on a regular basis with the teaching team involved in the delivery of the module and the year tutor. The module leader also seeks feedback from student representatives regarding the module.

**Personal Academic Tutors** are allocated to all first year students by the first year tutor.

**Admissions Officer** is responsible, through the Course Leader, to the Course Committee for the proper processing of all applications for admission to the course.

**Examination Officer** is responsible, on behalf of the Course Manager/Leader, for coordinating examination arrangements, including the setting and vetting of examination papers.

**A specialist tutor** is responsible for preparing students for their Year 3 position, liaising with providers to secure positions and (year 3 tutor) monitoring students whilst they are in Year 3. Appendix 2 - Assessment Strategies for modules

**YEAR ONE – FOUNDATION LEVEL MODULES**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module**  **Code** | **Module**  **Title** | **Assessment Weighting** | | | **Assessment**  **Strategy** |
| **Exam** | **C/W** | |
| **practical** | **other** |
| SFC1001 | Inorganic Chemistry 1 | 60 | 20 | 20 | 2 hr exam (60%), lab reports (20%), 2 x tests (20%) |
| SFC1002 | Organic Chemistry 1 | 60 | 20 | 20 | 2 hr exam (60%), lab reports (20%), assignment (20%) |
| SFC1004 | Analytical Science 1 |  | 30 | 70 | lab reports (30%), tests (70%) |
| SFC1007 | Practical Forensic Science 1 |  | 80 | 20 | Lab reports (80%), poster presentation (20%) |
| SFC1014 | Data Handling for Forensic Science |  |  | 100 | 3 maths tests (50%),  2 computing tests (50%) |
| SFC1003 | Physical Chemistry 1 | 60 | 20 | 20 | 2 hr exam (60%), lab reports (20%), 2 x tests (20%) |

**YEAR TWO – INTERMEDIATE LEVEL MODULES**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module** | **Module Title** | **Assessment Weighting** | | | **Assessment Strategy** |
| **Code** |  | **Exam** | **C/W** | |  |
|  |  |  | **practical** | **other** |  |
| SIC2002 | Organic Chemistry 2 | 60 | 25 | 15 | 2.5 hr exam (60%), lab reports (25%), assignment (15%) |
| SIC2004 | Analytical Science 2 |  | 20 | 80 | lab reports (20%), coursework (20%), 2 x tests (30% each) |
| SIC2007 | Practical Forensic Science 2 |  | 70 | 30 | Lab reports (70%), oral presentation (20%), test (10%) |
| SIC2010 | Crime Scene and Forensic Examinations |  | 25 | 75 | practical reports (25%), short assessments (25%), coursework (25%), witness statement/oral presentation (25%) |
| SIC2021 | Biology for the Chemical and Forensic Sciences | 60 | 20 | 20 | 2.5 hr exam (60%), lab reports (20%), short assessments (20%) |
| ***Options*** |  |  |  |  |  |
| SIC2001 | Inorganic Chemistry 2 | 35 | 30 | 35 | 2 hr exam (35%), lab reports (30%), coursework (35%) |
| SIC2003 | Physical Chemistry 2 | 60 |  | 40 | 2.5 hr exam (60%), coursework (40%) |

**YEARS THREE & FOUR – HONOURS LEVEL MODULES**

**YEAR THREE – HONOURS & MASTERS LEVEL MODULES**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module**  **Code** | **Module**  **Title** | **Assessment Weighting** | | | **Assessment**  **Strategy** |
| **Exam** | **C/W** | |
| **practical** | **other** |  |
| SHC3013/SHC3003 | Laboratory Techniques/Industrial training |  |  | 100 | SHC3013 - Supervisor assessment (50%), portfolio (50%)  SHC3003 – employer assessment (40%), SWE Tutor assessment (30%)student portfolio (30%) |
| SHC3014/SHC3004 | Investigative Project/Industrial Project |  | 100 |  | Project (100%) |
| SHC4027 | Specialised Analytical Techniques |  |  | 100 | 3 assignments |
| SMC4019 | Criminal Law and Presentation of Evidence |  |  | 100 | Court visit report & summative assessments (50%), export witness statement (50% |
| SMC4004 | Scientific Communication |  |  | 100 | Critique (40%), scientific paper (40%), oral (20%) |

**YEAR FOUR – HONOURS & MASTERS LEVEL MODULES**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module**  **Code** | **Module**  **Title** | **Assessment Weighting** | | | **Assessment**  **Strategy** |
| **Exam** | **C/W** | |
| **practical** | **other** |  |
| SHC4004 | Analytical Science 3 |  |  | 100 | 2 x tests (50% each) |
| SHC4007 | Advanced Crime Scene Sciences |  |  | 100 | Workshop reports |
| SMC4006 | Forensic Investigation and Evidence Types | 60 |  | 40 | 3 hr exam (60%), coursework (40%) |
| SMC4007 | Advanced Spectroscopic Techniques, Electroanalysis & Sensors | 40 |  | 60 | 2 hr exam (40%), coursework (10%), literature review (10%), test (40%) |
| SMC4018 | Research Project |  | 100 | | Practical work (15%), short assessments (15%), dissertation (50%), oral presentation (10%), poster presentation (10%) |

Mapping of learning outcomes on to modules

**Year 1 - Foundation Level**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Core modules | | | | | |
| Learning Outcome | SFC1001 | SFC1002 | SFC1004 | SFC1007 | SFC1014 | SFC1003 |
| 1 |  |  |  | ✔ |  |  |
| 2 |  |  |  | ✔ | ✔ |  |
| 3 | ✔ | ✔ | ✔ |  |  | ✔ |
| 4 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 5 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 6 |  |  |  |  | ✔ | ✔ |
| 7 |  |  |  |  |  |  |
| 8 |  |  |  | ✔ |  |  |
| 9 | ✔ | ✔ | ✔ |  |  | ✔ |
| 10 |  |  |  |  | ✔ | ✔ |
| 11 |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |
| 14 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 15 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 16 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 17 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 18 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 19 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 20 |  |  |  | ✔ | ✔ | ✔ |
| 21 |  |  |  |  |  |  |
| 22 | ✔ | ✔ | ✔ |  |  | ✔ |
| 23 |  |  | ✔ | ✔ |  | ✔ |
| 24 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 25 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 26 |  |  |  |  |  |  |
| 27 |  |  |  |  |  |  |
| 28 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 29 |  |  |  |  | ✔ | ✔ |
| 30 | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| 31 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 32 |  |  |  |  |  |  |
| 33 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |

**Year 2 - Intermediate Level**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Core Modules | | | | | Option Modules | |
| Learning Outcome | SIC2002 | SIC2004 | SIC2007 | SIC2010 | SIC2021 | SIC2001 | SIC2003 |
| 1 |  |  | ✔ | ✔ | ✔ |  |  |
| 2 |  |  | ✔ | ✔ | ✔ |  |  |
| 3 | ✔ | ✔ |  |  |  | ✔ | ✔ |
| 4 | ✔ | ✔ | ✔ |  | ✔ | ✔ | ✔ |
| 5 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 6 |  |  |  | ✔ |  |  | ✔ |
| 7 |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |
| 11 |  |  | ✔ | ✔ | ✔ |  |  |
| 12 | ✔ | ✔ |  |  |  | ✔ | ✔ |
| 13 |  |  |  |  |  |  |  |
| 14 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 15 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 16 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 17 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 18 | ✔ | ✔ | ✔ |  | ✔ | ✔ | ✔ |
| 19 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 20 |  |  | ✔ | ✔ |  |  |  |
| 21 |  |  | ✔ |  |  |  |  |
| 22 | ✔ | ✔ |  |  |  | ✔ | ✔ |
| 23 | ✔ | ✔ | ✔ |  |  | ✔ | ✔ |
| 24 | ✔ | ✔ | ✔ |  | ✔ | ✔ | ✔ |
| 25 | ✔ | ✔ | ✔ |  | ✔ | ✔ | ✔ |
| 26 |  |  | ✔ |  |  |  |  |
| 27 |  |  | ✔ |  |  |  |  |
| 28 | ✔ | ✔ | ✔ |  | ✔ | ✔ | ✔ |
| 29 |  | ✔ |  |  |  |  | ✔ |
| 30 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 31 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 32 |  |  |  | ✔ |  |  |  |
| 33 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |

**Third Year - Honours and Masters Level**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Learning Outcome | SHC3013/  SHC3003 | SHC4027 | SHC3014/ SHC3004 | SMC4019 | SMC4004 |
| 1 |  | ✔ |  | ✔ |  |
| 2 |  | ✔ |  | ✔ |  |
| 3 |  |  |  |  | ✔ |
| 4 | ✔ |  | ✔ |  | ✔ |
| 5 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 6 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 7 | ✔ |  | ✔ |  | ✔ |
| 8 |  |  |  |  |  |
| 9 |  |  |  |  |  |
| 10 |  |  |  |  |  |
| 11 | ✔ | ✔ | ✔ | ✔ |  |
| 12 | ✔ |  | ✔ |  | ✔ |
| 13 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 14 | ✔ | ✔ | ✔ | ✔ |  |
| 15 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 16 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 17 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 18 | ✔ |  | ✔ |  | ✔ |
| 19 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 20 |  |  |  |  | ✔ |
| 21 | ✔ | ✔ | ✔ |  | ✔ |
| 22 | ✔ |  | ✔ |  |  |
| 23 | ✔ |  | ✔ |  |  |
| 24 | ✔ |  | ✔ |  | ✔ |
| 25 | ✔ |  | ✔ |  | ✔ |
| 26 | ✔ |  | ✔ |  | ✔ |
| 27 | ✔ |  | ✔ |  | ✔ |
| 28 | ✔ |  | ✔ |  |  |
| 29 | ✔ |  | ✔ |  |  |
| 30 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 31 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 32 | ✔ |  | ✔ |  | ✔ |
| 33 | ✔ | ✔ | ✔ | ✔ | ✔ |

**Fourth Year - Honours and Masters Level**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Learning Outcome | SHC4004 | SMC4006 | SHC4007 | SMC4007 | SMC4018 |
| 1 |  | ✔ | ✔ |  |  |
| 2 |  | ✔ | ✔ |  |  |
| 3 | ✔ |  |  | ✔ | ✔ |
| 4 |  |  |  |  | ✔ |
| 5 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 6 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 7 |  |  |  |  | ✔ |
| 8 |  |  |  |  |  |
| 9 |  |  |  |  |  |
| 10 |  |  |  |  |  |
| 11 |  | ✔ |  |  |  |
| 12 | ✔ |  | ✔ | ✔ | ✔ |
| 13 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 14 |  | ✔ | ✔ |  | ✔ |
| 15 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 16 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 17 | ✔ | ✔ |  | ✔ | ✔ |
| 18 |  |  | ✔ |  | ✔ |
| 19 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 20 |  |  |  |  | ✔ |
| 21 |  |  |  |  | ✔ |
| 22 |  |  |  |  | ✔ |
| 23 |  |  |  |  | ✔ |
| 24 |  |  |  |  | ✔ |
| 25 |  |  |  |  | ✔ |
| 26 |  |  |  |  | ✔ |
| 27 |  |  |  |  | ✔ |
| 28 |  |  |  |  |  |
| 29 |  |  | ✔ |  |  |
| 30 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 31 | ✔ | ✔ | ✔ | ✔ | ✔ |
| 32 |  |  | ✔ |  | ✔ |
| 33 | ✔ | ✔ |  | ✔ | ✔ |