

PROGRAMME OF STUDY HANDBOOK

ACADEMIC DISCIPLINE OF APPLIED COMPUTING

**BSc (Hons) Ordnance, Munitions & Explosives
(Technical Research & Development)**

**BEng (Hons) Ordnance, Munitions & Explosives
(Safety)**

**BEng (Hons) Ordnance, Munitions & Explosives
(Manufacturing & Processing)**

**BEng (Hons) Ordnance, Munitions & Explosives
(Breakdown & Disposal)**

**BEng (Hons) Ordnance, Munitions & Explosives (Test
& Evaluation)**

HNC Ordnance, Munitions & Explosives

LEVEL 4

WALES INSTITUTE OF SCIENCE & ART

2021-2022

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INTRODUCTION

This handbook provides you with information about your Programme of Study for the academic year 2021/22. Module descriptors are presented in the accompanying Module Directory document.

Because of the ongoing Covid-19 situation, the University has made a number of changes for the 2021/22 academic year, e.g. in relation to how you can access facilities on our campuses, and how your programme will be delivered.

Access to the University's physical facilities will be led by Government and Public Health advice. Essential updates can be found here (<https://uwtsd.ac.uk/coronavirus/>) and on the [Student Hwb](#). Please also make sure that you read the Student Bulletin for essential updates as a change in status may affect how your programme is delivered.

As a result of these circumstances, most programmes will be delivered through in-person and blended online delivery. This approach will work to ensure that if you are shielding or self-isolating you will still be able to access your studies. If you have any specific needs arising from the current circumstances, we ask that you make Student Services and your programme team aware so that we can work to support you.

The University has made every effort to make the information as full and as accurate as possible, but you should note that minor changes in the organisation of modules between the planning stage and the actual teaching are inevitable. We shall try to keep any such changes to a minimum, and you will receive advance warning in the event of any alteration.

FEEDBACK

Feedback on your programme of study and modules is welcome and important and will help us to improve and enhance your learning experience. You can give feedback in a number of ways: through the academic representatives for your programme of study, through module evaluation questionnaires, through informal meetings with your academic support tutor, teaching staff, or Programme Manager, through focus groups to gain feedback from students on particular issues, or through the Students' Union. If there are issues, then it is important that you share these with us so that we can address them. We would also be grateful if you would let us know about any changes that you think might be helpful if introduced into future handbooks. Your opinion is valued.

PROGRAMMES OF STUDY AND PROGRAMME MANAGERS

This handbook covers the following Programmes of Study. The name and contact details of the Programme Managers are also listed below.

Programme of Study	Programme Manager	Tel. No.	E-mail
BSc (Hons) Ordnance, Munitions & Explosives (Technical Research & Development)	Stephen Mosey		Stephen.mosey@uwtsd.ac.uk
BEng (Hons) Ordnance, Munitions & Explosives (Safety)	Stephen Mosey		Stephen.mosey@uwtsd.ac.uk
BEng (Hons) Ordnance, Munitions & Explosives (Manufacturing & Processing)	Stephen Mosey		Stephen.mosey@uwtsd.ac.uk
BEng (Hons) Ordnance, Munitions & Explosives (Breakdown & Disposal)	Stephen Mosey		Stephen.mosey@uwtsd.ac.uk
BEng (Hons) Ordnance, Munitions & Explosives (Test & Evaluation)	Stephen Mosey		Stephen.mosey@uwtsd.ac.uk
HNC Ordnance, Munitions & Explosives	Stephen Mosey		Stephen.mosey@uwtsd.ac.uk

SUPPORT DURING YOUR STUDIES

A member of staff will be identified at the beginning of the academic year to act as a point of first contact for support issues. Further support can also be accessed through the [Student Services](#) department.

EXTERNAL EXAMINERS

All taught Programmes of Study which lead to an award of the University have at least one External Examiner. The principal purposes of the University's external examiner system are to ensure that:

- the standard of each award is maintained at the appropriate level;
- the standards of student performance are comparable with standards on similar programmes or subjects in other UK institutions with which they are familiar;
- the processes for assessment and the determination of awards are sound and fairly conducted.

Students may request a copy of the previous year's External Examiner's Report for their programme of study by contacting the Programme Manager.

The current External Examiners for the Programmes of Study are:

Programme of Study	External Examiner for 2021/22 (forename/surname)	External Examiner for 2020/21 (if different to current)
BSc (Hons) Ordnance, Munitions & Explosives (Technical Research & Development)	Jackie Akhavan	
BEng (Hons) Ordnance, Munitions & Explosives (Safety)	Jackie Akhavan	
BEng (Hons) Ordnance, Munitions & Explosives (Manufacturing & Processing)	Jackie Akhavan	
BEng (Hons) Ordnance, Munitions & Explosives (Breakdown & Disposal)	Jackie Akhavan	
BEng (Hons) Ordnance, Munitions & Explosives (Test & Evaluation)	Jackie Akhavan	
HNC Ordnance, Munitions & Explosives	Jackie Akhavan	

Please note that students are not permitted to make direct contact with the External Examiners without permission and to do so may be considered a disciplinary offence.

ACADEMIC YEAR 2021/22

The academic year 2021/22 will be divided up as follows:

Induction	20/09/21 - 24/09/21
Semester 1:	20/09/21 - 21/01/22
Exam Period 1:	05/01/22 - 14/01/22
Examining Boards:	31/01/22 - 11/02/22
Semester 2:	24/01/22 - 08/07/22
Exam Period 2:	04/05/22 - 18/05/22
Examining Boards:	30/05/22 - 16/06/22
Re-sit Period:	18/07/22 - 22/07/22

Please note that dates are subject to change depending upon developments relating to the Coronavirus/Covid-19 pandemic.

INFORMATION ABOUT YOU AND YOUR PROGRAMME OF STUDY

Information about you and your programme of study is held by the University on a central Student Record System managed by the University Registry. It is essential that the University Registry has an accurate record of your personal details at all times. It is equally important to ensure that you are enrolled on the correct Programme of Study and on the correct modules and that you read and agree to the Enrolment Agreement.

My Student Record / MyTSD

You can view your personal details on [MyTSD](#) and make requests to amend data when your circumstances change. It is important to keep your personal details up to date. You can use MyTSD to:

- enrol for the new academic year
- generate a 'Confirmation of enrolment' letter
- generate a council tax exemption letter and/or bank letter
- view enrolment and module registration details
- amend your address
- check your financial information (e.g. fees due)
- submit a programme change request
- apply for 'Extenuating Circumstances'
- check your module results and examining board decision
- request to withdraw from your studies

Failure to keep your personal details up to date can result in a range of problems including:

- delays in obtaining your student loan;
- failure to contact you in an emergency;
- not being able to borrow materials from the Library and Learning Resources; and
- not being able to use the Information Technology services;
- potential non-compliance with visa regulations.

Please take time to check your enrolment details on MyTSD.

DISCLOSURE AND BARRING SERVICE (DBS) – ENHANCED

If your programme involves you coming into contact with children or vulnerable adults, you will be required to undertake a DBS check (Enhanced). Further details will be provided by the University Registry or Programme Manager.

As part of each programme's procedures relating to DBS, continuing students will normally be required to inform their Programme Manager immediately of any change to their criminal convictions' status.

You will also be asked to complete a formal self-declaration during the enrolment period at the beginning of the academic year, which confirms your criminal conviction status.

MODULAR TERMINOLOGY

Level (of Study):

A level is assigned to each module to define the standard of its academic demand in line with the National Qualifications Framework which incorporates both Further Education and Higher Education.

The level is not necessarily synonymous with a year, though very often Level 4 will be the first year of a Programme of Study, Level 5 will be the second year, and Level 6 will be the third year. The basic characteristics of the relevant levels of study are outlined by the Welsh Assembly government and available on their website:

<https://gov.wales/sites/default/files/publications/2018-02/level-descriptors.pdf>

ASSESSMENT

At the start of each module, tutors will provide on Moodle full details of the means by which you will be assessed in that module. This will include a full assessment brief and guidelines on the criteria that will be used for marking your work as well as clear information about when the assessments are due and the turn-around feedback time for the assessments. It will also detail how you will be able to discuss the feedback on your work and your performance and what to do if you have any questions.

All assessed written coursework needs to be submitted in electronic copy via Turnitin; alternative instructions will be provided by the Programme Manager for any forms of coursework that cannot be submitted via Turnitin.

The University offers programmes in both English and Welsh. The normal expectation is that you will be assessed in the same language in which the programme or modules are delivered. If you have been taught in English and wish to be assessed in Welsh, or vice versa, you should consult your Programme Manager about the options available to you.

You will receive confirmation of your assessment marks at the end of each year. Any marks released prior to formal approval by the Progression / Award Examining Board are provisional.

Extenuating Circumstances

If you believe that there are extenuating circumstances which may have adversely affected your ability to complete coursework or examinations, you should follow the University's procedures for Extenuating Circumstances for Taught Provision, which can be found on the University's website and forms part of the *Mitigating Circumstances Policy*:

<http://www.uwtsd.ac.uk/academic-office/procedures-for-academic-appeals-complaints-and-other-student-cases/>

Additional needs in terms of assessment

If you have any additional needs in terms of assessment, it is your responsibility to liaise with Student Services regarding those needs at the start of the academic year, so that a Statement of Compensatory Measures can be drafted in line with the University's procedures for assessment of students with additional needs.

<http://www.uwtsd.ac.uk/services-for-disabled-students/>

Academic Appeals

Information about how to appeal is provided in the 'Academic Appeal Procedure' which forms part of the *Academic Appeal Policy* associated with Chapter 12 of the Academic Quality Handbook, and in supporting documentation published on the Academic Office section on the University's website:

<http://www.uwtsd.ac.uk/academic-office/procedures-for-academic-appeals-complaints-and-other-student-cases/>

Additional advice is available from the Students' Union. It is very important that you note carefully the grounds on which appeals may be made and submit your appeal on the appropriate form because incomplete or ineligible appeals cannot be processed.

Assessment Regulations

The rules and regulations that govern the assessment of your Programme of Study are available in Chapters 6 and 7 of the University's Academic Quality Handbook, a copy of which is available on the Academic Office section of the website:

<http://www.uwtsd.ac.uk/academic-office/academic-quality-handbook/>

Responsibilities of students in relation to the assessment process

You are responsible for ensuring that:

- i) You are correctly enrolled on your programme of study (including re-enrolment for each academic year after initial enrolment).
- ii) You read and understand the information provided about how you will be assessed, how your final award will be determined, and the action to take in the event that you experience difficulties relating to assessment.
- iii) You attempt every assessment component of a module.
- iv) You attend examinations and other assessment events, including re-examination and re-assessment events, as required; and that you are available to attend oral examinations if required to do so within the published dates of terms or semesters, or other date notified to you in advance.
- v) You submit work for assessment as required and in accordance with the required format and deadline.
- vi) You inform your Programme Manager or Student Services of any disability or long-term impairment which might require special provisions for assessment.
- vii) You familiarise yourself with the University's definition of academic misconduct and undertake assessments in a manner that does not attempt to gain unfair advantage.
- viii) You follow the prescribed procedures in the event that you experience extenuating circumstances or wish to appeal against the decision of an Examining Board.
- ix) You keep a copy of work presented for assessment wherever feasible.
- x) You make your work available for sampling for external examining purposes .

VIRTUAL LEARNING ENVIRONMENT (VLE)

Moodle is the University's Virtual Learning Environment (VLE). The VLE is used to support learning and teaching. It can be accessed by **enrolled** students from anywhere in the world using the internet and a web browser.

Some of Moodle's features allow students to:

- Access course materials
- Facilitate communication between students and tutors - this may also take place via Microsoft Teams
- Support group tasks
- Take online assessments with automatic marking and feedback facilities

Moodle can be used for administration tasks such as:

- Displaying announcements e.g. lecture venue changed
- Submission of assignments electronically
- Administration of online surveys, such as module questionnaires

How to Access:

You can access Moodle in 3 different ways:

1. From Hwb - Access your Hwb dashboard either by logging into a campus PC and opening Internet Explorer, or accessing <https://hwb.uwtsd.ac.uk> from any browser on an internet-connected device. Click on the Moodle tile.
2. From the University Website - navigate to <http://uwtsd.ac.uk> and select Quick Links (top left side of screen) and then Moodle.
3. URL Input - Open any browser on an internet-connected device and navigate to <http://moodle.uwtsd.ac.uk>

If you are already signed into the Hwb or Office 365 you should be automatically signed into Moodle when you connect, if not log in using your Network username and password which are the same as used to access a campus PC.

If you are missing courses/modules in the **My Courses** block please contact your **lecturers** to ask if they use Moodle. Please note it can take 24hrs for enrolment data to feed into Moodle. If you have problems finding resources (timetables, lecture notes, assignment briefs etc.) please contact the **lecturer** that delivers the course/module.

For any technical issues or error messages contact the **IT Service Desk** via:

Web: <https://webhelp.uwtsd.ac.uk>

Tel: 0300 500 5055

Or email: ITServiceDesk@uwtsd.ac.uk

In any correspondence please include your name and username (your student number) together with details of your issue.

Further information on using online and digital resources can be found at <https://digitallearning.uwtsd.ac.uk/>

ASSESSMENT FEEDBACK VIA TURNITIN

For feedback provided through Turnitin, there are two areas to get your feedback: written feedback, and the marking rubric.

Written feedback will comment on the overall work.

The marking rubric will focus on how the piece of work meets the criteria listed in the relevant rubric.

The marking rubric does not give a mathematically calculated result based on the sum of individual components but is used holistically to help determine the mark.

Written Feedback and the Marking Rubric can be found by clicking the buttons as shown when you view your submitted assignment in Turnitin.



PROGRAMMES OF STUDY

(1) BSc (Hons) Ordnance, Munitions & Explosives (Technical Research & Development)

In accordance with the mission of university, the programme aims to provide a full and satisfying vocational experience appropriate to Honours degree level, which will develop the student's ability to understand concepts, apply academic rigor and appraise critically the issues involved in the study of OME theory and applications, and stimulate creativity in the design and development of OME designs.

The portfolio has the following aims that take account of the Quality Assurance Agency Qualification Descriptors for Honours degrees in Engineering:

- a) To develop in students a systematic understanding of key aspects of a range of concepts, principles, and technologies associated with OME some of which may be at the forefront of the discipline.
- b) To develop in students a systematic understanding of key aspects, principles, facts and, theories associated with OME.
- c) To develop students understanding of the quantitative methods, mathematical principles and methods related to OME
- d) To promote a critical understanding of key themes in engineering industries and the applications of this knowledge.
- e) To encourage students to manage their own learning and development, including the time management and organisational skills required for employment whilst recognising the need for lifelong learning.
- f) To provide an opportunity for students to synthesise their knowledge, skills and ideas in the implementation of a suitable and appropriate Project.
- g) To integrate appropriate design, technology and commercial aspects to develop an ability to provide innovative, targeted solutions to problems that are environmentally sustainable.
- h) To enable a student to achieve a sound understanding of the principles of OME scenarios and to enable the student to design and analyse such systems.
- i) To enable students to apply analytical methods, modelling and simulation to produce and analyse solutions to problems.
- j) To develop student's ability to use computer software to design solutions and solve problems.
- k) To provide a systematic understanding of the commercial and economic context of engineering processes including user requirements, management techniques and quality issues.
- l) To promote an awareness of legal, professional and ethical issues.
- m) To develop in students the transferable skills required in the employment context including workshop skills.
- n) To enable students to work under guidance and as a member of a team.
- o) To provide students with a systematic understanding of the comprehensive knowledge and skills needed to collect, interpret, analyse, synthesise and communicate data using appropriate methods.
- p) To provide an opportunity for students to demonstrate academic rigour appropriate to Honours level through the use of critical, analytical and technical skills.
- q) To provide the students with a holistic and interdisciplinary approach to engineering.

Programme Learning Outcomes

On completion of the programme students will be able to demonstrate the following skills and abilities:

Core Knowledge (BSc (Hons), DipHE and CertHE)

K1 Knowledge and application of mathematical and statistical methods and modelling to support technical design and analysis using the principles of analysis and interpretation of experimental data.

K2 Demonstrate a critical evaluation of OME concepts and designs.

K3 Knowledge of the scientific principles underpinning relevant current and emerging technologies together with a broader view of how they can be used within the OME environment.

K4 Implementation of safety and environmental requirements to the OME industry lifecycle and all other tasks.

K5 Knowledge and understanding of the internal and external regulatory environment pertinent to the sector.

K6 Recognise the business environment in which businesses operate including ethical practice and codes of conduct

K7 An understanding of OME based studies in Science or Engineering at an advanced level

K8 An understanding of the design and/or performance of OME through its lifecycle and an understanding of related specialisms

BSc (Hons) and DipHE

K9 The application of project management procedures in the OME work environment.

K10 Knowledge of engineering and material science and their relationship to the product lifecycle processes.

K11 Knowledge of the means of achieving the design function or purpose for an OME item

BSc (Hons)

K12 Understanding of the requirements of internal or external customers and how to recommend the appropriate workflows, improvements or OME solutions.

K13 Understanding of the implications of change in design and/or manufacturing processes of both energetic materials and items to ensure product quality and safety.

K14 Ability to develop and apply the theoretical and practical knowledge of the physics and chemistry of energetic materials, from the laboratory scale through to final item

K15 Understanding developments in new and existing technologies

K16 Able to use a range of research methods applicable to this field, ranging from molecular modelling of energetic materials through to full OME field trials.

K17 Ability to use and apply a systems-based approach to design within specified parameters.

Core Skills

BSc (Hons), DipHE and CertHE

S1 Identification and development of solutions to OME based problems and areas of improvement and proposal of innovative solutions

S2 Implementation of safe working systems via the interpretation of hazard data, identification of environmental effects and potentially dangerous events.

S3 Sharing of acquired knowledge, including safety, technical aspects and mentorship.

S4 Ability to interpret and translate customer requirements into a deliverable solution for research benefits

S5 Able to specify performance of energetics tests and interpretation of data

BSc (Hons) and DipHE

S6 Research, development and recommendation of initiatives that support and improve existing OME performance

S7 Interpretation and implementation of industry standards, procedures and specifications

S8 Contribution to longer term technical planning, customer requirements and participation in business case creation

S9 Ability to respond rapidly to changing developments (e.g. issues such as a material becoming obsolete and can suggest a replacement).

S10 Ability to report/communicate technical aspects to both technical and non-technical audiences (e.g. the ability to cooperate with customers or report to senior management)

BSc (Hons)

S11 Systematic application of scientific/engineering and commercial knowledge to take an OME idea from concept to implementation.

S12 Procurement and operation of OME systems according to explosives regulations.

S13 Development and implementation of business directed plans and strategies to time, cost and quality requirements

S14 Application of the appropriate research method and analyse the resulting data, (e.g. choice of appropriate safety tests for new OME items and correctly interpreting the test data).

S15 Ability to apply new and emerging technologies in the development of new and existing OME, such as nanomaterials and how to handle them.

Core Behaviours

BSc (Hons), DipHE and CertHE

B1 Acting ethically and with integrity

B2 Engaging and taking responsibility for personal development

B3 Demonstrating a commitment to learning and self-improvement with an open acceptance to feedback

B4 Taking responsibility for the quality of work

B5 Recognising factors in environmental and societal contexts relating to the opportunities and challenges created by OME systems across a range of human activities.

BSc (Hons) and DipHE

B6 Working autonomously and as part of a wider team

BSc (Hons)

B7 Innovating and adapting within the boundaries of responsibilities

B8 Working within the limits of experience and knowledge.

Each of the above PLOs is covered by at least 2 modules at the appropriate level (taking into account individual patterns of study).

Level 4

All Level 4 students must normally pursue 120 credits at Level 4. The credit rating of each module is specified in the module details.

Modules

PROGRAMME STRUCTURE

Structure: Full-time Students

Year 1, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4010	Study Skills	Compulsory	10
ACDA4008	Mathematics	Compulsory	20
ACDA4006	Electrical and Electronic Principles	Compulsory	20
ACDA4007	Physics (OME)	Compulsory	20

Year 2, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4005	Principles of Systems Engineering	Compulsory	20
ACDA4009	Signals and Systems	Compulsory	10
ACDA4011	Chemistry (OME)	Compulsory	20
ACDA5010	Principles of OME	Compulsory	20
ACDA5011	Instrumentation and Control	Compulsory	10

(2) BEng (Hons) Ordnance, Munitions & Explosives (Safety)

In accordance with the mission of university, the programme aims to provide a full and satisfying vocational experience appropriate to Honours degree level, which will develop the student's ability to understand concepts, apply academic rigor and appraise critically the issues involved in the study of OME theory and applications, and stimulate creativity in the design and development of OME designs.

The portfolio has the following aims that take account of the Quality Assurance Agency Qualification Descriptors for Honours degrees in Engineering:

- a) To develop in students a systematic understanding of key aspects of a range of concepts, principles, and technologies associated with OME some of which may be at the forefront of the discipline.
- b) To develop in students a systematic understanding of key aspects, principles, facts and theories associated with OME.
- c) To develop students understanding of the quantitative methods, mathematical principles and methods related to OME
- d) To promote a critical understanding of key themes in engineering industries and the applications of this knowledge.
- e) To encourage students to manage their own learning and development, including the time management and organisational skills required for employment whilst recognising the need for lifelong learning.
- f) To provide an opportunity for students to synthesise their knowledge, skills and ideas in the implementation of a suitable and appropriate Project.
- g) To integrate appropriate design, technology and commercial aspects to develop an ability to provide innovative, targeted solutions to problems that are environmentally sustainable.
- h) To enable a student to achieve a sound understanding of the principles of OME scenarios and to enable the student to design and analyse such systems.
- i) To enable students to apply analytical methods, modelling and simulation to produce and analyse solutions to problems.
- j) To develop student's ability to use computer software to design solutions and solve problems.
- k) To provide a systematic understanding of the commercial and economic context of engineering processes including user requirements, management techniques and quality issues.
- l) To promote an awareness of legal, professional and ethical issues.
- m) To develop in students the transferable skills required in the employment context including workshop skills.
- n) To enable students to work under guidance and as a member of a team.
- o) To provide students with a systematic understanding of the comprehensive knowledge and skills needed to collect, interpret, analyse, synthesise and communicate data using appropriate methods.
- p) To provide an opportunity for students to demonstrate academic rigour appropriate to Honours level through the use of critical, analytical and technical skills.
- q) To provide the students with a holistic and interdisciplinary approach to engineering.

Programme Learning Outcomes

BEng (Hons), DipHE and CertHE

Core Knowledge

K1 Knowledge and application of mathematical and statistical methods and modelling to support technical design and analysis using the principles of analysis and interpretation of experimental data.

K2 Demonstrate a critical evaluation of OME concepts and designs.

K3 Knowledge of the scientific principles underpinning relevant current and emerging technologies together with a broader view of how they can be used within the OME environment.

K4 Implementation of safety and environmental requirements to the OME industry lifecycle and all other tasks.

K5 Knowledge and understanding of the internal and external regulatory environment pertinent to the sector.

K6 Recognise the business environment in which businesses operate including ethical practice and codes of conduct

K7 Recognise the mitigation and control of the hazards and effects associated with the OME life-cycle

K8 Understand techniques for assessing the severity of events with regards to OME facilities.

BEng (Hons) and DipHE

K9 The application of project management procedures in the OME work environment.

K10 Knowledge of engineering and material science and their relationship to the product lifecycle processes.

K11a Understand the application and implementation of explosives regulations, legislation relating to OME and industry best practice

K11b Understanding of facility infrastructure and operations and their associated hazards

K11C Knowledge of explosives licensing, and emergency planning.

BEng (Hons)

K12 Understanding of the requirements of internal or external customers and how to recommend the appropriate workflows, improvements or OME solutions.

K13 Understanding of the implications of change in design and/or manufacturing processes of both energetic materials and items to ensure product quality and safety.

K14 Ability to develop and apply the theoretical and practical knowledge of the physics and chemistry of energetic materials, from the laboratory scale through to final item

K15a Understanding of the development and implementation of safety management systems using appropriate safety tools

K16a Understanding of the influence of human factors on manufacturing and operational environments

Core Skills

BEng (Hons), DipHE and CertHE

S1 Identification and development of solutions to OME based problems and areas of improvement and proposal of innovative solutions

S2 Implementation of safe working systems via the interpretation of hazard data, identification of environmental effects and potentially dangerous events.

S3 Sharing of acquired knowledge, including safety, technical aspects and mentorship.

S4a Ability to observe, monitor, inspect and report on OME processes and facilities.

S5a Able to apply appropriate safety tools

BEng (Hons) and DipHE

S6 Research, development and recommendation of initiatives that support and improve existing OME performance

S7 Interpretation and implementation of industry standards, procedures and specifications

S8 Contribution to longer term technical planning, customer requirements and participation in business case creation

S9a Able to apply knowledge to process design and the selection of controls to prevent precursors of fire/explosion via the application of a hierarchal approach.

BEng (Hons)

S11 Systematic application of scientific/engineering and commercial knowledge to take an OME idea from concept to implementation.

S12 Procurement and operation of OME systems according to explosives regulations.

S13 Development and implementation of business directed plans and strategies to time, cost and quality requirements

S14a Ability to influence policy, standards & guidance, and provide advice on safety matters relating to the OME life-cycle

S15a Ability to develop safety management systems through the application of key risk control systems

S16a Able to apply appropriate hierarchy of controls to continuously improve safety

S17a Ability to interpret explosives characterisation test results to identify the intrinsic properties of explosives.

S18a Ability to determine whether the control measures render any risk associated with the OME life-cycle to be tolerable.

Core Behaviours

BEng (Hons), DipHE and CertHE

B1 Acting ethically and with integrity

B2 Engaging and taking responsibility for personal development

B3 Demonstrating a commitment to learning and self-improvement with an open acceptance to feedback

B4 Taking responsibility for the quality of work

B5 Recognising factors in environmental and societal contexts relating to the opportunities and challenges created by OME systems across a range of human activities.

BEng (Hons) and DipHE

B6 Working autonomously and as part of a wider team

BEng (Hons)

B7 Innovating and adapting within the boundaries of responsibilities.

Level 4

All Level 4 students must normally pursue 120 credits at Level 4. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Structure: Full-time Students

Year 1, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4010	Study Skills	Compulsory	10
ACDA4008	Mathematics	Compulsory	20
ACDA4006	Electrical and Electronic Principles	Compulsory	20
ACDA4007	Physics (OME)	Compulsory	20

Year 2, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4005	Principles of Systems Engineering	Compulsory	20
ACDA4009	Signals and Systems	Compulsory	10
ACDA4011	Chemistry (OME)	Compulsory	20
ACDA5010	Principles of OME	Compulsory	20
ACDA5011	Instrumentation and Control	Compulsory	10

(3) Eng (Hons) Ordnance, Munitions & Explosives (Manufacturing & Processing)

In accordance with the mission of university, the programme aims to provide a full and satisfying vocational experience appropriate to Honours degree level, which will develop the student's ability to understand concepts, apply academic rigor and appraise critically the issues involved in the study of OME theory and applications, and stimulate creativity in the design and development of OME designs.

The portfolio has the following aims that take account of the Quality Assurance Agency Qualification Descriptors for Honours degrees in Engineering:

- a) To develop in students a systematic understanding of key aspects of a range of concepts, principles, and technologies associated with OME some of which may be at the forefront of the discipline.
- b) To develop in students a systematic understanding of key aspects, principles, facts and, theories associated with OME.
- c) To develop students understanding of the quantitative methods, mathematical principles and methods related to OME
- d) To promote a critical understanding of key themes in engineering industries and the applications of this knowledge.
- e) To encourage students to manage their own learning and development, including the time management and organisational skills required for employment whilst recognising the need for lifelong learning.
- f) To provide an opportunity for students to synthesise their knowledge, skills and ideas in the implementation of a suitable and appropriate Project.
- g) To integrate appropriate design, technology and commercial aspects to develop an ability to provide innovative, targeted solutions to problems that are environmentally sustainable.
- h) To enable a student to achieve a sound understanding of the principles of OME scenarios and to enable the student to design and analyse such systems.
- i) To enable students to apply analytical methods, modelling and simulation to produce and analyse solutions to problems.
- j) To develop student's ability to use computer software to design solutions and solve problems.
- k) To provide a systematic understanding of the commercial and economic context of engineering processes including user requirements, management techniques and quality issues.
- l) To promote an awareness of legal, professional and ethical issues.
- m) To develop in students the transferable skills required in the employment context including workshop skills.
- n) To enable students to work under guidance and as a member of a team.
- o) To provide students with a systematic understanding of the comprehensive knowledge and skills needed to collect, interpret, analyse, synthesise and communicate data using appropriate methods.
- p) To provide an opportunity for students to demonstrate academic rigour appropriate to Honours level through the use of critical, analytical and technical skills.
- q) To provide the students with a holistic and interdisciplinary approach to engineering.

Programme Learning Outcomes

On completion of the programme students will be able to demonstrate the following skills and abilities.

Core Knowledge

BEng (Hons), DipHE and CertHE

K1 Knowledge and application of mathematical and statistical methods and modelling to support technical design and analysis using the principles of analysis and interpretation of experimental data.

K2 Demonstrate a critical evaluation of OME concepts and designs.

K3 Knowledge of the scientific principles underpinning relevant current and emerging technologies together with a broader view of how they can be used within the OME environment.

K4 Implementation of safety and environmental requirements to the OME industry lifecycle and all other tasks.

K5 Knowledge and understanding of the internal and external regulatory environment pertinent to the sector.

K6 Recognise the business environment in which businesses operate including ethical practice and codes of conduct

K7a Understanding of the importance, rationale and emphasis placed on OME product critical features and their effect on the overall system

K8a Understanding of functional requirements and design choices available

BEng (Hons) and DipHE

K9 The application of project management procedures in the OME work environment.

K10 Knowledge of engineering and material science and their relationship to the product lifecycle processes.

K11 Knowledge of the means of achieving the design function or purpose for an OME item

BEng (Hons)

K12 Understanding of the requirements of internal or external customers and how to recommend the appropriate workflows, improvements or OME solutions.

K13 Understanding of the implications of change in design and/or manufacturing processes of both energetic materials and items to ensure product quality and safety.

K14 Ability to develop and apply the theoretical and practical knowledge of the physics and chemistry of energetic materials, from the laboratory scale through to final item

K15a Understanding of the requirements of the end-to-end manufacturing process

K16a Knowledge of the balance between workplace and product safety and the appropriate quality measures required to maintain safe operation throughout the OME life-cycle.

Core Skills

BEng (Hons), DipHE and CertHE

S1a Ability to identify and develop solutions to OME based problems and areas of improvement and proposal of innovative solutions

S2a Ability to implementation safe working systems via the interpretation of hazard data, identification of environmental effects and potentially dangerous events.

S3a Ability to share of acquired knowledge, including safety, technical aspects and mentorship.

S4a Ability to communicate effectively using a range of strategies to maintain OME process capability and troubleshoot potential problems.

BEng (Hons) and DipHE

S6 Research, development and recommendation of initiatives that support and improve existing OME performance

S7 Interpretation and implementation of industry standards, procedures and specifications

S8a Ability to contribute to longer term technical planning, customer requirements and participation in business case creation

S9a Ability to demonstrate OME process capability and produce OME process capability reports, quality reports and preventative maintenance schedules.

BEng (Hons)

S11 Systematic application of scientific/engineering and commercial knowledge to take an OME idea from concept to implementation.

S12 Procurement and operation of OME systems according to explosives regulations.

S13 Development and implementation of business directed plans and strategies to time, cost and quality requirements

S14 Compare process design concepts and use appropriate tools and techniques to select the most viable option for OME manufacturing

S15a Prepare OME manufacturing, commissioning and plant test plans, taking the process design from the production of OME prototypes through to bulk manufacture.

S16a Ability to interpret failure modes and identify OME process improvements using the output from the PFMEA to improve process capability and safety.

S17a Able to compile and deliver an OME process control plan via the use of noises and controls analysis, reducing process variability.

S18a Able to demonstrate compliance with explosives legislative requirements via auditable processes, procedures and records.

Core Behaviours

BEng (Hons), DipHE and CertHE

B1 Acting ethically and with integrity

B2 Engaging and taking responsibility for personal development

B3 Demonstrating a commitment to learning and self-improvement with an open acceptance to feedback

B4 Taking responsibility for the quality of work.

B5 Recognising factors in environmental and societal contexts relating to the opportunities and challenges created by OME systems across a range of human activities.

BEng (Hons) and DipHE

B6 Working autonomously and as part of a wider team

BEng (Hons)

B7 Innovating and adapting within the boundaries of responsibilities B8 Working within the limits of experience and knowledge.

Level 4

All Level 4 students must normally pursue 120 credits at Level 4. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Structure: Full-time Students

Year 1, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4010	Study Skills	Compulsory	10
ACDA4008	Mathematics	Compulsory	20
ACDA4006	Electrical and Electronic Principles	Compulsory	20
ACDA4007	Physics (OME)	Compulsory	20

Year 2, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4005	Principles of Systems Engineering	Compulsory	20
ACDA4009	Signals and Systems	Compulsory	10
ACDA4011	Chemistry (OME)	Compulsory	20
ACDA5010	Principles of OME	Compulsory	20
ACDA5011	Instrumentation and Control	Compulsory	10

(4) BEng (Hons) Ordnance, Munitions & Explosives (Breakdown & Disposal)

In accordance with the mission of university, the programme aims to provide a full and satisfying vocational experience appropriate to Honours degree level, which will develop the student's ability to understand concepts, apply academic rigor and appraise critically the issues involved in the study of OME theory and applications, and stimulate creativity in the design and development of OME designs.

The portfolio has the following aims that take account of the Quality Assurance Agency Qualification Descriptors for Honours degrees in Engineering:

- To develop in students a systematic understanding of key aspects of a range of concepts, principles, and technologies associated with OME some of which may be at the forefront of the discipline.
- To develop in students a systematic understanding of key aspects, principles, facts and, theories associated with OME.
- To develop students understanding of the quantitative methods, mathematical principles and methods related to OME

- d) To promote a critical understanding of key themes in engineering industries and the applications of this knowledge.
- e) To encourage students to manage their own learning and development, including the time management and organisational skills required for employment whilst recognising the need for lifelong learning.
- f) To provide an opportunity for students to synthesise their knowledge, skills and ideas in the implementation of a suitable and appropriate Project.
- g) To integrate appropriate design, technology and commercial aspects to develop an ability to provide innovative, targeted solutions to problems that are environmentally sustainable.
- h) To enable a student to achieve a sound understanding of the principles of OME scenarios and to enable the student to design and analyse such systems.
- i) To enable students to apply analytical methods, modelling and simulation to produce and analyse solutions to problems.
- j) To develop student's ability to use computer software to design solutions and solve problems.
- k) To provide a systematic understanding of the commercial and economic context of engineering processes including user requirements, management techniques and quality issues.
- l) To promote an awareness of legal, professional and ethical issues.
- m) To develop in students the transferable skills required in the employment context including workshop skills.
- n) To enable students to work under guidance and as a member of a team.
- o) To provide students with a systematic understanding of the comprehensive knowledge and skills needed to collect, interpret, analyse, synthesise and communicate data using appropriate methods.
- p) To provide an opportunity for students to demonstrate academic rigour appropriate to Honours level through the use of critical, analytical and technical skills.
- q) To provide the students with a holistic and interdisciplinary approach to engineering.

Programme Learning Outcomes

Core Knowledge

BEng (Hons), DipHE and CertHE

- K1 Knowledge and application of mathematical and statistical methods and modelling to support technical design and analysis using the principles of analysis and interpretation of experimental data.
- K2 Demonstrate a critical evaluation of OME concepts and designs.
- K3 Knowledge of the scientific principles underpinning relevant current and emerging technologies together with a broader view of how they can be used within the OME environment.
- K4 Implementation of safety and environmental requirements to the OME industry lifecycle and all other tasks.
- K5 Knowledge and understanding of the internal and external regulatory environment pertinent to the sector.
- K6 Recognise the business environment in which businesses operate including ethical practice and codes of conduct
- K7 Recognise the hazards associated with the breakdown and disposal of OME and how to reduce the risk, such as bespoke and remote tooling.

BEng (Hons) and DipHE

K9 The application of project management procedures in the OME work environment.

K10 Knowledge of engineering and material science and their relationship to the product lifecycle processes.

K11a Knowledge of OME design, initiation systems, safety and arming mechanisms and their operation to enable the ability to safely breakdown devices.

K11b Knowledge of the risk control and safety requirements for the safe evaluation, breakdown or disposal of OME, including mitigation options.

BEng (Hons)

K12 Understanding of the requirements of internal or external customers and how to recommend the appropriate workflows, improvements or OME solutions.

K13 Understanding of the implications of change in design and/or manufacturing processes of both energetic materials and items to ensure product quality and safety.

K14 Ability to develop and apply the theoretical and practical knowledge of the physics and chemistry of energetic materials, from the laboratory scale through to final item

K15a Understanding of the decontamination techniques and the potential environmental impacts of breakdown and disposal of OME

K16a Knowledge of the detailed breakdown and disposal techniques when applied to a range of OME systems (including sampling, x-ray, forensics).

Core Skills

BEng (Hons), DipHE and CertHE

S1 Identification and development of solutions to OME based problems and areas of improvement and proposal of innovative solutions

S2 Implementation of safe working systems via the interpretation of hazard data, identification of environmental effects and potentially dangerous events.

S3 Sharing of acquired knowledge, including safety, technical aspects and mentorship.

S4a Generate and communicate decommissioning, breakdown and disposal instructions, including safety arrangements – (e.g. writing risk assessments and emergency plans).

BEng (Hons) and DipHE

S6 Research, development and recommendation of initiatives that support and improve existing OME performance

S7 Interpretation and implementation of industry standards, procedures and specifications

S8 Contribution to longer term technical planning, customer requirements and participation in business case creation

S9a Ability to apply best practice to protect the environment (e.g. solutions to reduce waste, recycle/reuse materials and reduce noise from demolitions).

BEng (Hons)

S11 Systematic application of scientific/engineering and commercial knowledge to take an OME idea from concept to implementation.

S12 Procurement and operation of OME systems according to explosives regulations.
S13 Development and implementation of business directed plans and strategies to time, cost and quality requirements
S14a Evaluate, select and implement the appropriate breakdown or disposal technique for specified OME items (e.g. non-destructive breakdown for in-service surveillance).
S15a Plan disposal routes, decommissioning and breakdown activities for OME items – (e.g. collection of contaminated water after jet washing).
S16a Ability to apply suitable risk control and mitigation methods to ensure the safe breakdown and disposal of OME (e.g. knowing when to use remote methods or when it is safe to work on system or parts of systems).

Core Behaviours

BEng (Hons), DipHE and CertHE

B1 Acting ethically and with integrity
B2 Engaging and taking responsibility for personal development
B3 Demonstrating a commitment to learning and self-improvement with an open acceptance to feedback
B4 Taking responsibility for the quality of work
B5 Recognising factors in environmental and societal contexts relating to the opportunities and challenges created by OME systems across a range of human activities.

BEng (Hons) and DipHE

B6 Working autonomously and as part of a wider team.

BEng (Hons)

B7 Innovating and adapting within the boundaries of responsibilities
B8 Working within the limits of experience and knowledge

Level 4

All Level 4 students must normally pursue 120 credits at Level 4. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Structure: Full-time Students

Year 1, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4010	Study Skills	Compulsory	10
ACDA4008	Mathematics	Compulsory	20
ACDA4006	Electrical and Electronic Principles	Compulsory	20
ACDA4007	Physics (OME)	Compulsory	20

Year 2, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4005	Principles of Systems Engineering	Compulsory	20
ACDA4009	Signals and Systems	Compulsory	10
ACDA4011	Chemistry (OME)	Compulsory	20
ACDA5010	Principles Of OME	Compulsory	20
ACDA5011	Instrumentation and Control	Compulsory	10

(5) BEng (Hons) Ordnance, Munitions & Explosives (Test & Evaluation)

In accordance with the mission of university, the programme aims to provide a full and satisfying vocational experience appropriate to Honours degree level, which will develop the student's ability to understand concepts, apply academic rigor and appraise critically the issues involved in the study of OME theory and applications, and stimulate creativity in the design and development of OME designs.

The portfolio has the following aims that take account of the Quality Assurance Agency Qualification Descriptors for Honours degrees in Engineering:

- To develop in students a systematic understanding of key aspects of a range of concepts, principles, and technologies associated with OME some of which may be at the forefront of the discipline.
- To develop in students a systematic understanding of key aspects, principles, facts and, theories associated with OME.
- To develop students understanding of the quantitative methods, mathematical principles and methods related to OME
- To promote a critical understanding of key themes in engineering industries and the applications of this knowledge.
- To encourage students to manage their own learning and development, including the time management and organisational skills required for employment whilst recognising the need for lifelong learning.
- To provide an opportunity for students to synthesise their knowledge, skills and ideas in the implementation of a suitable and appropriate project.
- To integrate appropriate design, technology and commercial aspects to develop an ability to provide innovative, targeted solutions to problems that are

- environmentally sustainable. h) To enable a student to achieve a sound understanding of the principles of OME scenarios and to enable the student to design and analyse such systems. i) To enable students to apply analytical methods, modelling and simulation to produce and analyse solutions to problems. j) To develop student's ability to use computer software to design solutions and solve problems. k) To provide a systematic understanding of the commercial and economic context of engineering processes including user requirements, management techniques and quality issues. l) To promote an awareness of legal, professional and ethical issues. m) To develop in students the transferable skills required in the employment context including workshop skills. n) To enable students to work under guidance and as a member of a team. o) To provide students with a systematic understanding of the comprehensive knowledge and skills needed to collect, interpret, analyse, synthesise and communicate data using appropriate methods. p) To provide an opportunity for students to demonstrate academic rigour appropriate to Honours level through the use of critical, analytical and technical skills. q) To provide the students with a holistic and interdisciplinary approach to engineering.

Programme Learning Outcomes

On completion of the programme students will be able to demonstrate the following skills and abilities:

Core Knowledge

BEng (Hons), DipHE and CertHE

- K1 Knowledge and application of mathematical and statistical methods and modelling to support technical design and analysis using the principles of analysis and interpretation of experimental data.
 K2 Demonstrate a critical evaluation of OME concepts and designs.
 K3 Knowledge of the scientific principles underpinning relevant current and emerging technologies together with a broader view of how they can be used within the OME environment.
 K4 Implementation of safety and environmental requirements to the OME industry lifecycle and all other tasks.
 K5 Knowledge and understanding of the internal and external regulatory environment pertinent to the sector.
 K6 Recognise the business environment in which businesses operate including ethical practice and codes of conduct
 K7a Knowledge of the science of energetic materials/articles and how they behave under trial or test conditions.

BEng (Hons) and DipHE

- K9 The application of project management procedures in the OME work environment.
 K10 Knowledge of engineering and material science and their relationship to the product lifecycle processes.
 K11a Recognise and mitigate risk in a trials/test environment to people, equipment and infrastructure.

BEng (Hons)

K12 Understanding of the requirements of internal or external customers and how to recommend the appropriate workflows, improvements or OME solutions.

K13 Understanding of the implications of change in design and/or manufacturing processes of both energetic materials and items to ensure product quality and safety.

K14 Ability to develop and apply the theoretical and practical knowledge of the physics and chemistry of energetic materials, from the laboratory scale through to final item.

K15a Knowledge of the technology, methods and scientific equipment used in the evaluation of OME including the calibration, accuracy, consistency and limitations of various instrumentation

K16a Understanding of the range of large scale tests and trials.

K17a Knowledge of how to implement safe systems of work and the consequences of unsafe working practices.

Core Knowledge

BEng (Hons), DipHE and CertHE

S1 Identification and development of solutions to OME based problems and areas of improvement and proposal of innovative solutions

S2 Implementation of safe working systems via the interpretation of hazard data, identification of environmental effects and potentially dangerous events.

S3 Sharing of acquired knowledge, including safety, technical aspects and mentorship.

S4a Effectively communicate using different ways of presenting results of trials and tests to the customer.

BEng (Hons) and DipHE

S6 Research, development and recommendation of initiatives that support and improve existing OME performance

S7 Interpretation and implementation of industry standards, procedures and specifications

S8 Contribution to longer term technical planning, customer requirements and participation in business case creation

S9a Safely and methodically conduct trials and tests in accordance with approved processes.

BEng (Hons)

S11a Ability to systematically apply scientific/engineering and commercial knowledge to take an OME idea from concept to implementation.

S12 Procurement and operation of OME systems according to explosives regulations.

S13a Ability to develop and implement business directed plans and strategies to time, cost and quality requirements

S14a Ability to apply the concepts of the one area / capability / technology to another by working from first principles to establish clear pathways to goals.

S15a Select and set-up various instrumentation and scientific equipment to obtain the desired test/trial results.

S16a Select, plan and execute appropriate large-scale test methodologies

S17a Interpret customer requirements to formulate the appropriate trials and tests to meet their expectations.

S18a Interpret the association between hazards and risks and can apply sound judgement to manage appropriately.

Core Behaviours

BEng (Hons), DipHE and CertHE

B1 Acting ethically and with integrity

B2 Engaging and taking responsibility for personal development

B3 Demonstrating a commitment to learning and self-improvement with an open acceptance to feedback

B4 Taking responsibility for the quality of work

B5 Recognising factors in environmental and societal contexts relating to the opportunities and challenges created by OME systems across a range of human activities.

BEng (Hons) and DipHE

B6 Working autonomously and as part of a wider team.

BEng (Hons)

B7 Innovating and adapting within the boundaries of responsibilities

B8 Working within the limits of experience and knowledge

Level 4

All Level 4 students must normally pursue 120 credits at Level 4. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Structure: Full-time Students

Year 1, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4010	Study Skills	Compulsory	10
ACDA4008	Mathematics	Compulsory	20
ACDA4006	Electrical and Electronic Principles	Compulsory	20
ACDA4007	Physics (OME)	Compulsory	20

Year 2, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4005	Principles of Systems Engineering	Compulsory	20
ACDA4009	Signals and Systems	Compulsory	10
ACDA4011	Chemistry (OME)	Compulsory	20
ACDA5010	Principles of OME	Compulsory	20
ACDA5011	Instrumentation and Control	Compulsory	10

(6) HNC Ordnance, Munitions & Explosives

In accordance with the mission of the University, the programme aims to provide a full and satisfying vocational experience appropriate to Higher National Certificate level, which will develop the student's ability to understand concepts, apply academic rigor and appraise critically the issues involved in the study of OME theory and applications, and stimulate creativity in the design and development of OME designs.

The portfolio has the following aims that take account of the Quality Assurance Agency Qualification Descriptors for Higher National Certificate in Engineering:

- a) To develop in students an systematic understanding of key aspects of a range of concepts, principles, and technologies associated with OME some of which may be at the forefront of the discipline.
- b) To develop in students an systematic understanding of major key aspects, principles, facts and, theories associated with OME.
- c) To develop students understanding of the quantitative methods, mathematical principles and methods related to OME
- d) To encourage students to undertake and manage their own learning and development, including the time management and organisational skills required for employment whilst recognising the need for lifelong learning.
- e) To provide an opportunity for students to synthesise their knowledge, skills and ideas in the implementation of a suitable and appropriate work-related project.

Programme Learning Outcomes

On completion of the programme students will be able to demonstrate the following skills and abilities.

Core Knowledge

- K1 Understands the underlying mathematical and statistical principles associated with the technical design and analysis of OME products.
- K2 Knowledge of the function of OME concepts and designs.
- K3 Knowledge of the scientific principles underpinning relevant technologies that can be used in the OME environment.
- K4 Knowledge of the safety and environmental requirements relevant to OME industry lifecycle and all other tasks.

Core Skills

- S1 Identification and development of solutions to OME based problems
- S2 Implementation of safe working systems via the interpretation of hazard data.
- S3 Effectively communicate using different ways of presenting relevant OME data.

Core Behaviours

- B1 Acting ethically and with integrity

B2 Taking responsibility for the quality of work including safety, technical aspects and mentorship.

B3 Demonstrating a commitment to learning and self-improvement with an open acceptance to feedback

B4 Engaging and taking responsibility for personal development

Level 4

All Level 4 students must normally pursue 120 credits at Level 4. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Structure: Full-time Students

Year 1, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4010	Study Skills	Compulsory	10
ACDA4008	Mathematics	Compulsory	20
ACDA4006	Electrical and Electronic Principles	Compulsory	20
ACDA4007	Physics (OME)	Compulsory	20

Year 2, Semester 1 & 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACDA4005	Principles of Systems Engineering	Compulsory	20
ACDA4009	Signals and Systems	Compulsory	10
ACDA4011	Chemistry (OME)	Compulsory	20
ACDA4014	Applied Design Project	Compulsory	20

Where appropriate, the University may allow students to study modules in addition to the 120 credits studied for the level of study e.g. Welsh medium or IT modules. Students would need to discuss this with their Programme Manager.

Note that on Programmes of Study offering a large number of options, timetable constraints will inevitably mean that not all combinations of options will be possible.

Module details are correct on 1 September 2021, and will not normally be changed during the year. In the unlikely event of changes having to be made to these details during the year, you will be notified in writing. Module descriptors are presented in the accompanying Module Directory document.

UNIVERSITY ATTENDANCE POLICY

Attendance is an important indicator of your engagement with and success in your studies. All students are therefore required to attend all scheduled classes and tutorials and Institutes will record individual academic attendance. It is important that:

- you familiarise yourself with the attendance policy relevant to you (see <https://www.uwtsd.ac.uk/academic-office/other-forms-and-policies/>);
- you are fully aware of procedures to follow in case of unexpected absences;
- you are aware that disciplinary action will be taken for any sustained periods of unauthorised absence.

This is particularly important for **international students with a UKVI student Visa**. Failure to adhere to the requirements and conditions of the Attendance Policy will lead to withdrawal from your programme and the University will also inform the UKVI to withdraw your student visa sponsorship.

Appeal against withdrawal due to poor attendance – Information on how to appeal against withdrawal due to poor attendance is provided on the University's website (<http://www.uwtsd.ac.uk/academic-office/procedures-for-academic-appeals-complaints-and-other-student-cases/>).

CODES OF CONDUCT

The University is committed to providing all students with a safe and inclusive learning environment where all students have the potential to succeed to the best of their ability.

The University expects all students to abide by the Student Code of Conduct (see <https://www.uwtsd.ac.uk/studentcharter/>).

The University also has Support for Study and Fitness to Practise Policies (see <https://www.uwtsd.ac.uk/academic-office/academic-quality-handbook/>).

In addition, many programmes have a professional code of conduct that you are expected to adhere to. Your Programme Manager will provide you with appropriate details.

ABOUT ACADEMIC MISCONDUCT AND PLAGIARISM

The University defines academic misconduct as ‘any act, intentional or otherwise, whereby a person may obtain for himself/herself or for another, an unpermitted advantage...’. Committing academic misconduct in assessment is one of the most serious offences in academic life, and its consequences can be severe. It undermines the integrity of scholarship, research, and of the examination and assessment process.

It is very important to understand that it is no defence to claim that academic misconduct has been committed unintentionally, accidentally, due to extenuating circumstances or a long-term impairment (irrespective of whether or not these circumstances or long-term impairment have been acknowledged by the University).

Plagiarism is one type of academic misconduct. Plagiarism is passing off, or attempting to pass off, another’s work as your own. It includes copying the words, ideas, images or research results of another **without acknowledgement**, whether those words etc. are published or unpublished. It is plagiarism, for example, to copy the work of another student, of a member of staff or a published article without crediting the author. Persons who allow their work to be plagiarised are also guilty.

It should be noted that re-submitting work that has already been submitted for a different assessment task without noting that this is the case is also regarded as plagiarism (and is called self-plagiarism) and will be treated as such.

Plagiarism is one of the worst offences in academic life, and its consequences can be severe. It undermines the integrity of scholarship, research, and of the examination and assessment process. The guidance that follows explains what is meant by plagiarism, describes the University’s regulations for dealing with it, and provides help in avoiding it.

When enrolling as a student at the University of Wales Trinity Saint David you have consented to your work being scrutinised both electronically and in person to check for cases of plagiarism. Normally, your work will be submitted electronically via Moodle.

For submissions outside of the Moodle platform, it is equally important that you reference your sources accurately. In some cases, you will be expected to submit both hard and electronic copies, which can be checked against the database of the UK Higher Education Plagiarism Detection Service. For handwritten, portfolio and process workbook submissions check with your module tutor if you are in any doubt about whether you have infringed the regulations. They are here to assist you; ensure that you take advantage of their expertise.

Plagiarism: Regulations, Procedure and Penalties

Full details of the University’s procedures and penalties for dealing with issues of plagiarism can be found in Chapter 12 of the *Academic Quality Handbook* and the associated *Academic Misconduct Policy*, which can be seen on the University website or obtained from the Institute Offices.

<https://www.uwtsd.ac.uk/academic-office/academic-quality-handbook/>

Avoiding Plagiarism

Coursework, dissertations, or creative work are meant to be your own original work. Obviously, you will use the work of others. Not only is this inevitable, it is expected. All scholarship builds on the work of others. The important thing to remember is always to **acknowledge your sources**. The University recognises four referencing styles: APA, Harvard, IEEE and MHRA and provides a handbook for each of these styles.

For your programme of study, you should be using IEEE. The handbooks can be found online: <https://www.uwtsd.ac.uk/library/infoskills/referencing-handbooks/> or in print from the Library and Learning Resources. A Referencing Essentials session will be provided during the first term of your first year but as a general rule of thumb observe the following:

- *Anything that is copied or quoted from another source, including electronic sources such as the internet, must be in quotation marks and attributed to the original author. This may be in the body of the text or as a footnote, depending on which Referencing style you are asked to use.*
- *Paraphrasing or summarising the work of others involves putting their ideas into your words. This is fine, but again, acknowledge your source.*
- *Where you are generally indebted for your ideas to one or two main sources, this can be a bit trickier. If the ideas or the way they are presented come from one or two sources, make this clear. Do the same if they come from lectures. It is important not to claim originality where it does not exist but to indicate in general where the information comes from.*
- *Full citations in timed unseen examinations are obviously not expected, but you should indicate general indebtedness and always credit any quotations you have managed to remember.*

The golden rule is; **'if in doubt, provide references'** and your Referencing Handbook will provide you with specific guidance to help you to do this correctly. For support, contact your tutor or Academic Liaison Librarian. There are no penalties for asking for advice and guidance; there are severe penalties for plagiarism and failure to reference means your work could be considered to be plagiarised.

Other types of Academic Misconduct

There are other types of academic misconduct, including, but not limited to producing work as a group where it is an individual task (called collusion), fabricating data or making false claims to have carried out research, using the service of an essay bank/essay mill, having an unauthorised source of information in an examination, prohibited communication during an examination. The same regulations, procedures and penalties apply to all types of academic misconduct.

LIBRARY AND LEARNING RESOURCES

Library and Learning Resources (LLR) supports the learning, teaching and research activities of staff and students across the University with library services available at Birmingham, Carmarthen, Lampeter, London and Swansea including online resources, social learning spaces, special collections and archives.

The library prioritises the purchase of e-books over print wherever possible and loan periods are regularly reviewed by the library to ensure that they are appropriate and provide equitable access to resources. It is expected that at least all Essential reading list items are available from the library. The LLR follows a Fairer Fines policy which means students are only fined on items if they are in heavy demand or requested by another library user.

The LLR provides a *Need More?* service which aims to provide a one stop shop for all learning resource needs, for example, if a book, journal or thesis is needed which is

not in the library stock then it may be purchased or borrowed from another library. Further information can be found here: <https://uwtsd.ac.uk/library/need-more/>.

Learning Spaces

As well as collections, the library provides a variety of modern and flexible learning spaces, reflecting different styles of working e.g. group study spaces and quiet areas, as well as IT facilities, wireless internet, photocopying and printing facilities and excellent customer service.

Online Library

The LLR offers a wide range of printed and electronic resources including an extensive collection of online e-journals and e-books that are available 24/7 providing access to scholarly journals, newspapers, company reports and reference material. The library catalogue searches the whole range of print and online library materials and gives access to your library account from anywhere.

InfoSkills

All students are provided with a library tour, a Basic Skills session and a Referencing Essentials session in the first few weeks at the University. Academic Liaison Librarians will help students to develop the skills required to find, use and evaluate information sources within their subject areas. Numerous sessions are offered throughout the year to help students develop their Information Skills further to support their academic success and employability. These include sessions on identifying fake news, using statistics, Copyright awareness, and managing your online identity. The LLR operates an open door policy which enables students to ask for help and advice on the information resources available throughout the academic year. Academic Liaison Librarians are welcomed to Staff / Student Committees, and also attend other relevant Institute meetings where invited, including the Institute Board. For further information on InfoSkills provision go to: <https://www.uwtsd.ac.uk/library/infoskills/>

Special Collections and Archives

The Library is also home to the Special Collections of UWTSd, including the University's oldest printed books, manuscripts and archives. The Special Collections include over 35,000 printed works, 8 medieval manuscripts, around 100 post medieval manuscripts, and 69 incunables. Material from the Archives includes the institutional archive of St David's College, later The University of Wales, Lampeter, and Trinity College Carmarthen, both constituent members of the University of Wales Trinity Saint David. Students are encouraged to use these wonderful resources as part of their studies, regardless of discipline. Visits and workshops are often arranged within the purpose-built reading rooms in the Lampeter campus library and there is a regular programme of exhibitions across the campuses and online.

For recent service developments, updates and contact information please visit the University Library website at <http://www.uwtsd.ac.uk/library/>. The latest updates on Covid related impact to services during 21/22 can be found here <https://uwtsd.ac.uk/library/help-and-support/covid-19-services/>. Please also follow the Library and Learning Resources on Facebook, Instagram or Twitter for up-to-date news, service developments and information on new services and resources: @UWTSdLib

STUDENT SERVICES

A professional support service providing high quality information, advice, guidance, practical and emotional support to enable all students to reach their full potential.

Support available includes the Careers Service, Financial Support, Learning Support, Counselling Service and support for students from a care background. For further details see <http://www.uwtsd.ac.uk/student-services/>.

STUDY SKILLS

All students have access to study skills support to assist them in their studies. Details of provision are available from the Student Services offices on each campus and at <http://www.uwtsd.ac.uk/study-skills/>.

Topics covered include:

Developing effective study strategies

Planning and writing assignments

Preparing presentations

Planning for seminars

Preparing for exams

Drop-in study skills sessions and 1:1 appointments are available online (and in person where possible) – no appointment necessary. Please see the Student Services study skills webpages for further details: <http://www.uwtsd.ac.uk/study-skills/>.

COMPLAINTS

You have a right to make a complaint about any specific concern about the provision of your Programme of Study or a related academic service. Full details of the complaints process can be found in the *Student Complaint Policy* associated with Chapter 12 of the Academic Quality Handbook and in supporting documentation published on the Academic Office section on the University's website:

<http://www.uwtsd.ac.uk/academic-office/procedures-for-academic-appeals-complaints-and-other-student-cases/>